PANA -09837

Panasonic

Color Television
TC-33V2PX

Operating Instructions

Please read these instructions completely before operating this set and retain it for future reference.

TQB620860

9837

Dear Panasonic Customer

Welcome to the Panasonic family of Customers.

We hope that you will have many years of enjoyment from your new color television set.

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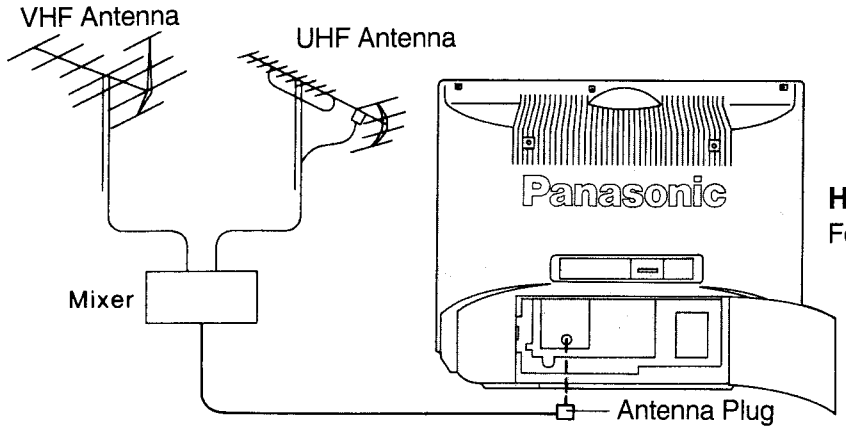
Before Operating this Set

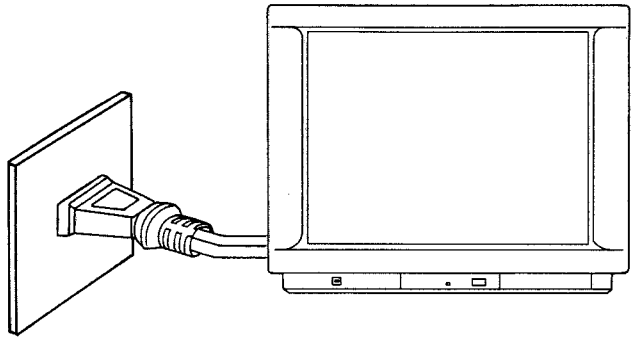
Preparations

Connect the Antenna Cable to the RF In Terminal



How to connect an Antenna
For connection details refer to page 18.

Connect the Plug to the wall outlet



Connect the AC Plug to AC Outlet

This TV set can be operated on AC 120-240 V, 50/60 Hz.

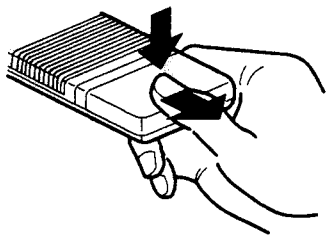
Note:
Remove the plug from the wall outlet when the TV set is not used for a prolonged period of time.

For Warnings and Cautions details, refer to page 70.
Für die Warn- und Sicherheitshinweise ist auf Seite 71 Bezug zu nehmen.

Battery Installation and Replacement

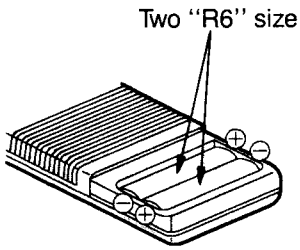
Batteries: Use two "R6" size batteries

1



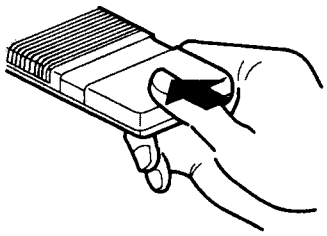
Open the cover.
Push down and remove the cover.

2



Replace the batteries.
Insert the batteries with the correct polarity as indicated by the "+" and "−" symbols.

3



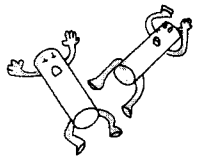
Replace the cover.

Do not use rechargeable (Ni-Cd) batteries.
They are partially different in shape and performance and may fail to ensure the desired function.

Battery precautions

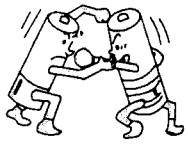
The incorrect use of batteries can cause electrolyte leakage which will corrode the remote control transmitter or cause the batteries to burst. The following precautions must be observed carefully.

Old Batteries



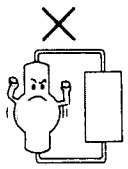
New Batteries

Replace both batteries at the same time.
Dispose of them immediately.

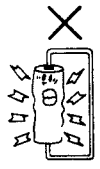


Don't mix battery types
(alkaline with carbon zinc, etc.)

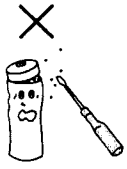
Don't



Recharge



Short-circuit

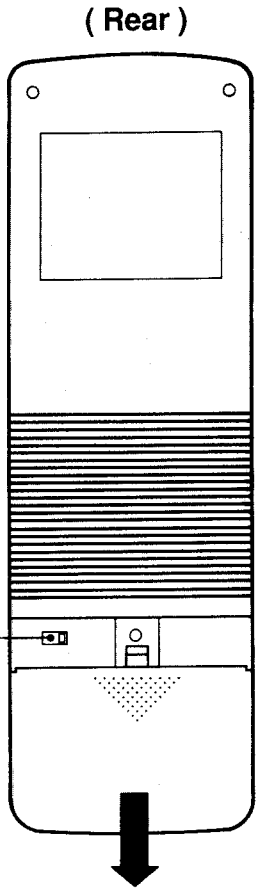


Disassemble

Fire

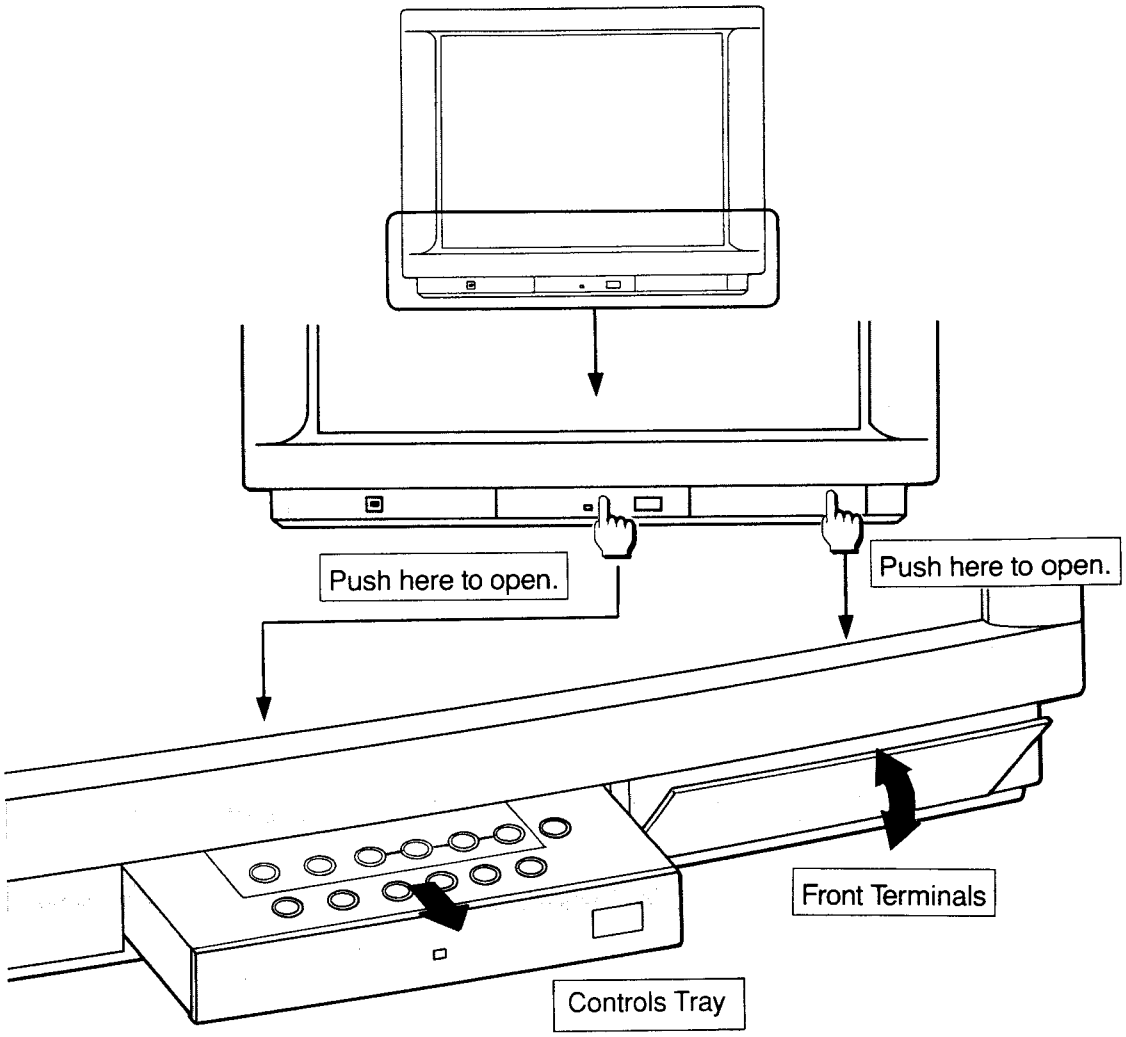
Heat or Burn

VCR Mode Selection

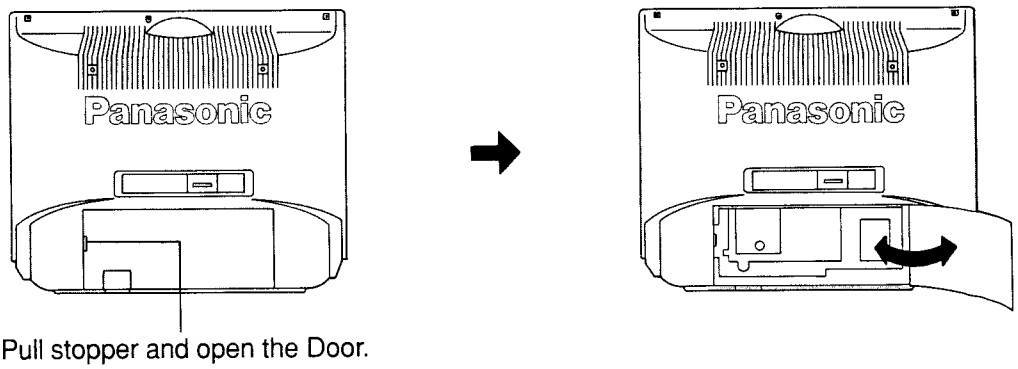

(Rear)
VCR Mode Select Switch
When used with normal Panasonic/National VCR, set this switch to "6B".
If operation cannot be carried out, set to "8B".
Open the cover
(Push down and Slide the cover out.)

How to Open the Controls panels

How to Open the Controls Tray and Front Terminals



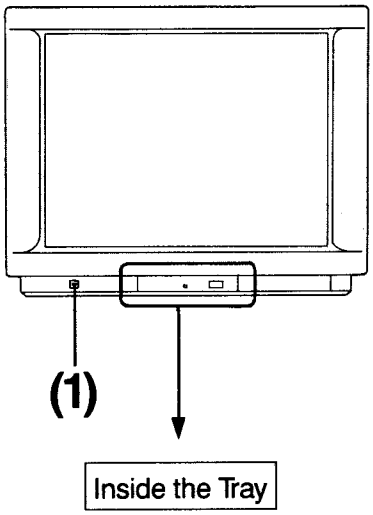
How to Open the Rear Terminals Door

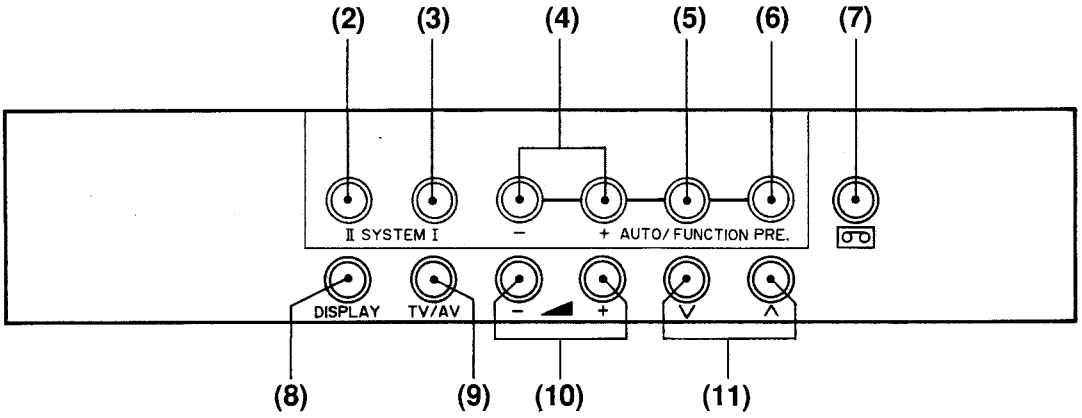


Pull stopper and open the Door.

Location of Controls for TV Set

Inside the Tray



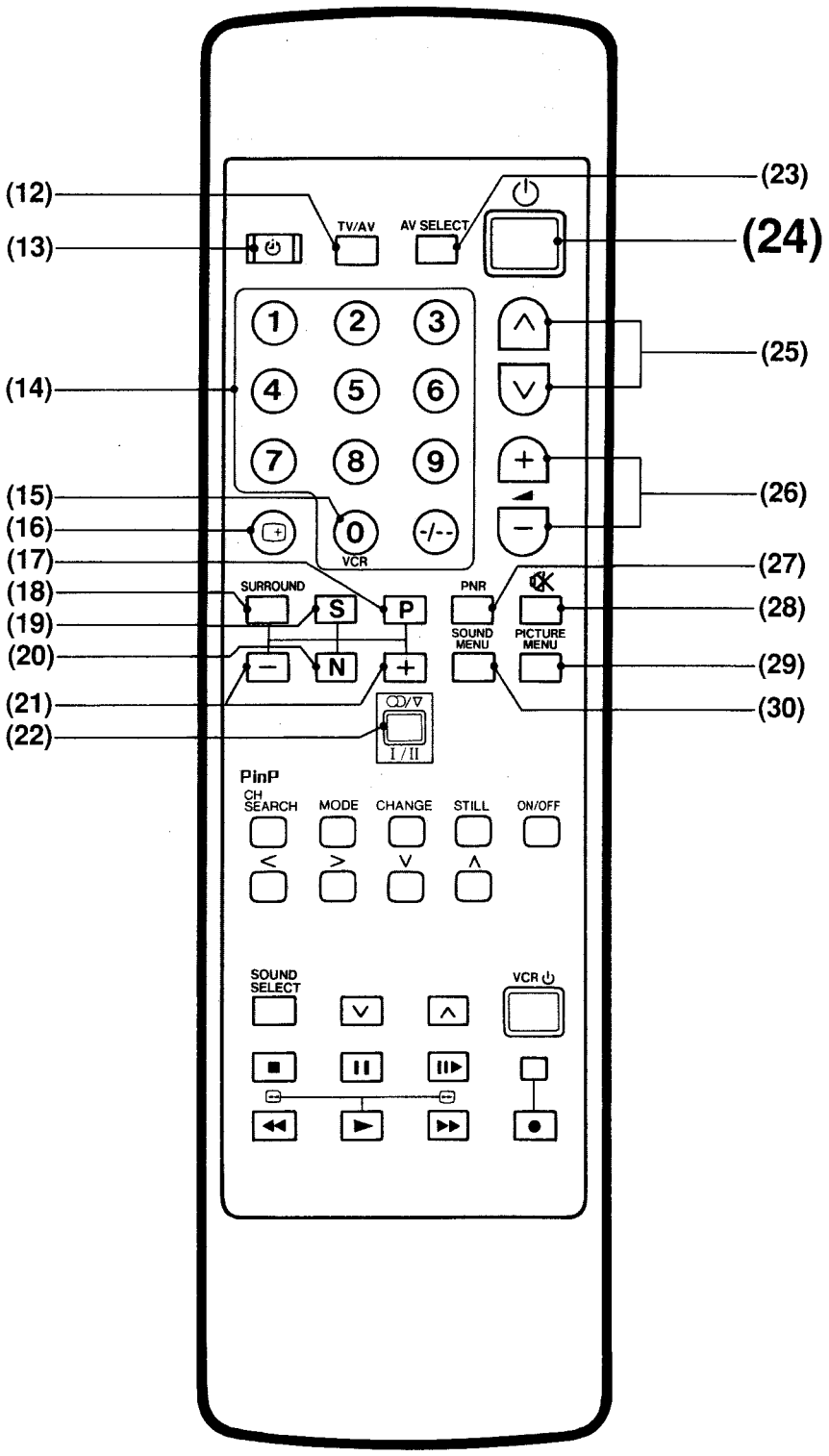


Location of Controls for TV Set

No.	Description
(1)	Power Switch
(2)	System II Selection Button (Sound System)
(3)	System I Selection Button (Color System)
(4)	Level Adjustment Buttons
(5)	Auto/Function Button
(6)	Preset Button
(7)	Game Position Button
(8)	Display Button
(9)	TV/AV Selection Button
(10)	Volume Up and Down Buttons
(11)	Program Number Up and Down Buttons

Location of Controls for Remote Control

For Regular TV Operation

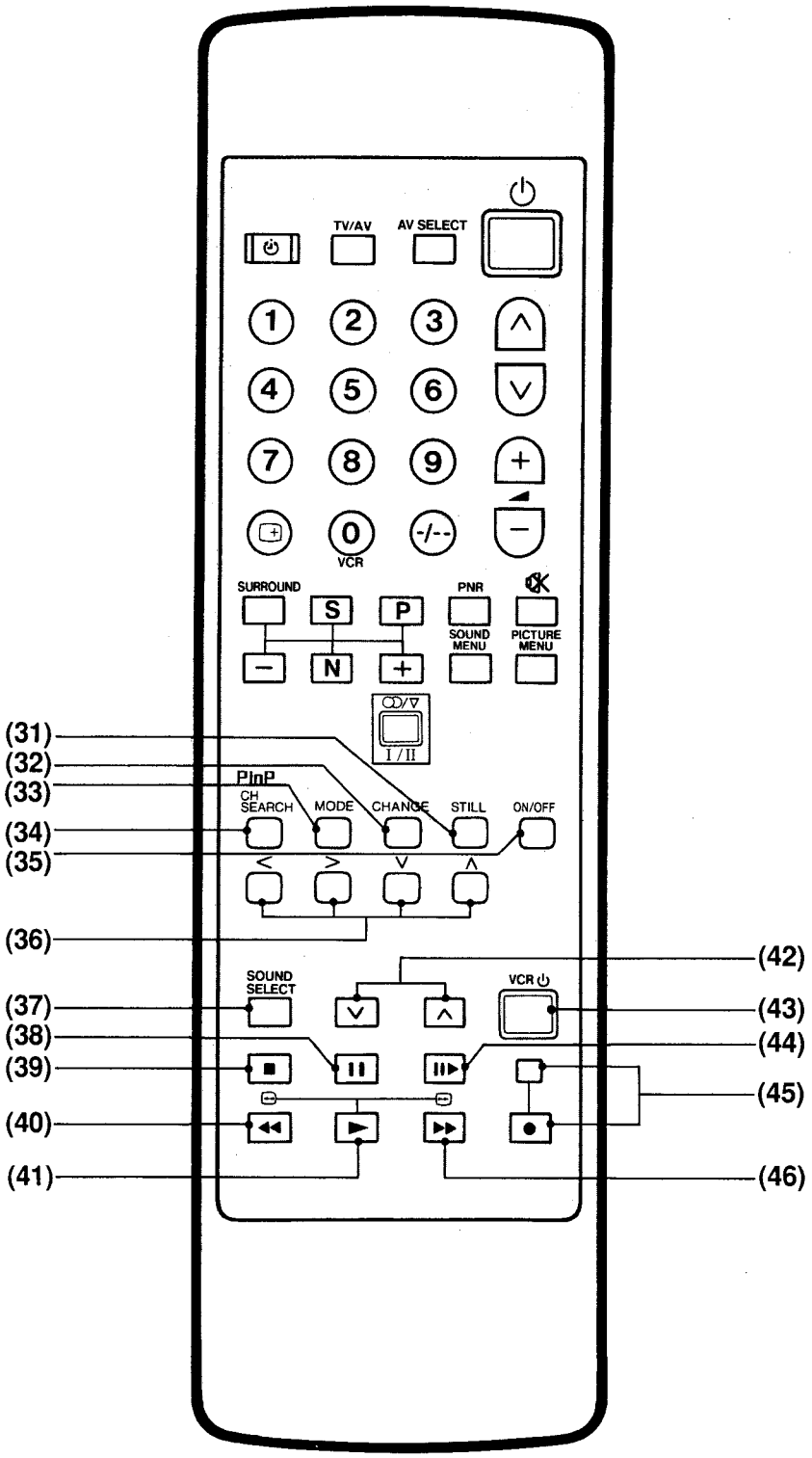


Location of Controls for Remote Control

No.	Description
(12)	TV/AV Selection Button
(13)	Off-Timer Button
(14)	Direct Program Number Selection Buttons
(15)	O/VCR Button
(16)	Recall Button
(17)	Picture Function Button
(18)	Surround Button
(19)	Sound Function Button
(20)	Normalization Button
(21)	Function level Up and Down Buttons
(22)	Stereo/Bilingual Sound Selection Button
(23)	AV Selection Button
(24)	**Power (Stand-by) Button**
(25)	Program Number Up and Down Buttons
(26)	Volume Up and Down Buttons
(27)	Picture Noise Reduction Button
(28)	Mute Button
(29)	Picture Menu Button
(30)	Sound Menu Button

Location of Controls for Remote Control

For Picture-in-Picture and VCR Operation

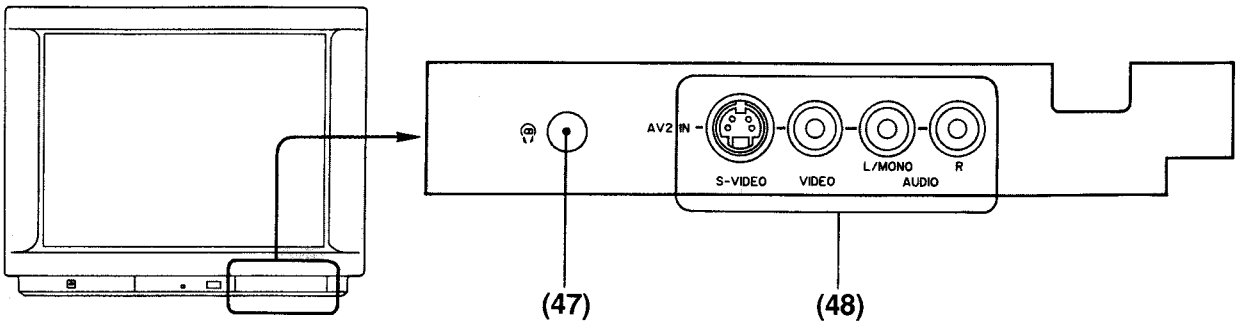


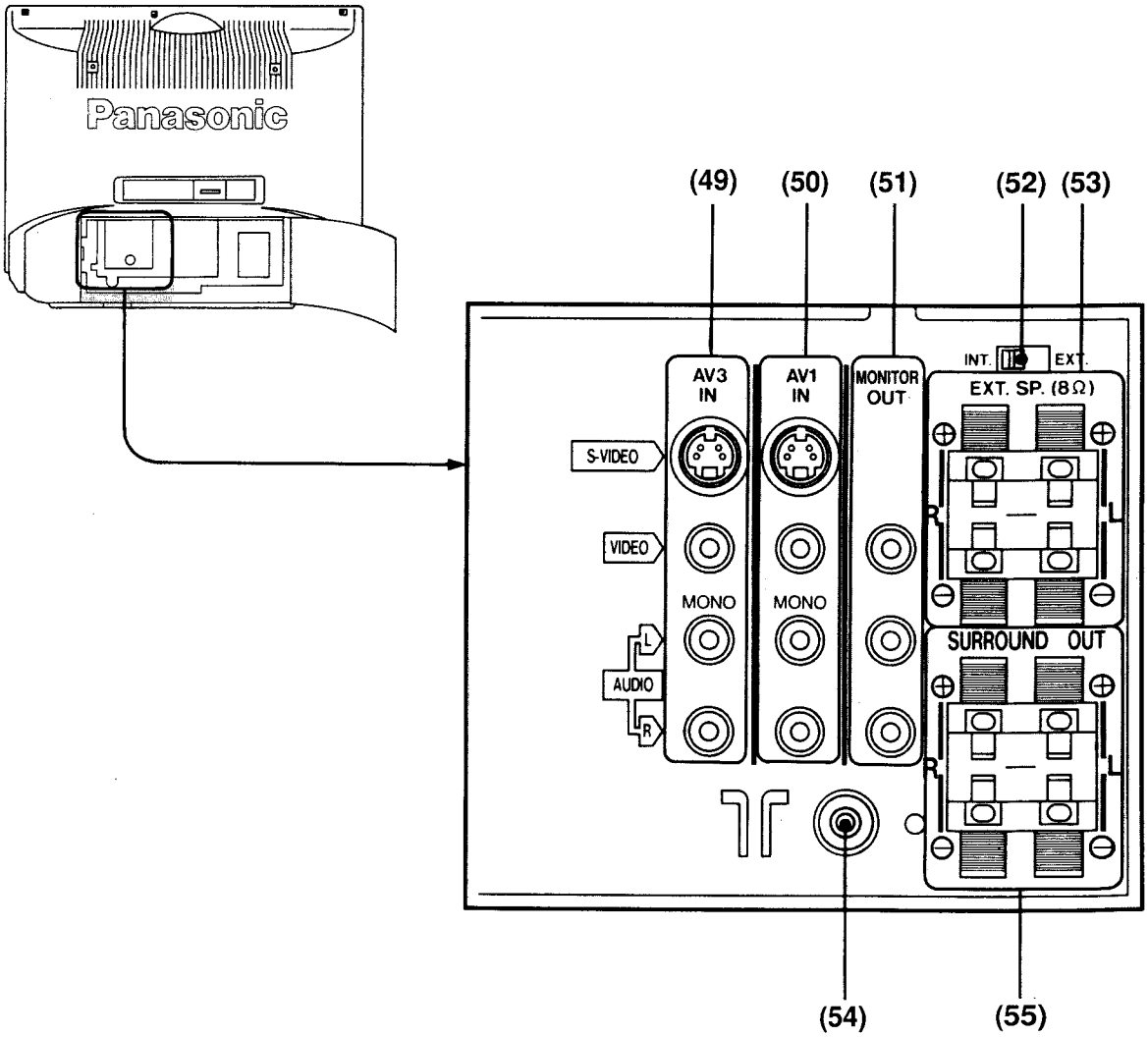
Location of Controls for Remote Control

No.	Description
(31)	Still Button
(32)	Change Button
(33)	Mode Selection Button
(34)	Channel Search Button
(35)	P-in-P On/Off Button
(36)	Position Buttons
(37)	Sound Selection Button for VCR
(38)	Pause Still Button
(39)	Stop Button
(40)	Rewind/Review Button
(41)	Play Button
(42)	Program Number Up and Down Buttons for VCR
(43)	VCR Power Button
(44)	Still Advance Button
(45)	Record Buttons
(46)	Fast Forward Button

Location of Terminals

Location of Front and Rear Terminals





Location of Terminals

No.	Description
(47)	Headphones Jack
(48)	AV 2 Input Terminals
(49)	AV 3 Input Terminals
(50)	AV 1 Input Terminals
(51)	Monitor Output Terminals
(52)	Speaker Selection Switch
(53)	External Speaker Terminals
(54)	Antenna Terminal
(55)	Surround Speaker Terminals

How to Connect an Antenna

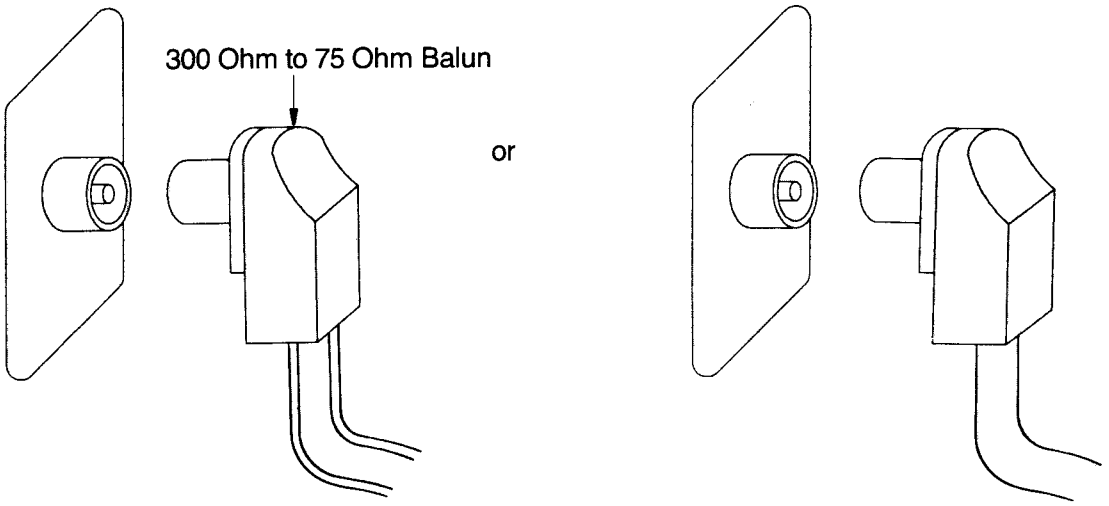
To obtain the best quality picture and sound, an Antenna, the correct cable (75 Ohm coaxial) and the correct terminating plug will be required.

If a communal Antenna system is used, you may require the correct connection cable and plug between the wall Antenna socket and your television receiver.

Your local Television Service Agent or Dealer may be able to assist you in obtaining the correct Antenna system for your particular area and any accessories required.

Any matters regarding Antenna installation, upgrading of existing systems or accessories required, and the costs incurred, are the responsibility of the customer.

Note:
If your existing Antenna system uses 300 Ohm ribbon cable you will require to use a 300 Ohm to 75 Ohm Balun.
See below.



300 Ohm Ribbon

75 Ohm Coaxial Cable

Automatic Turn-off Function

Noise Timer

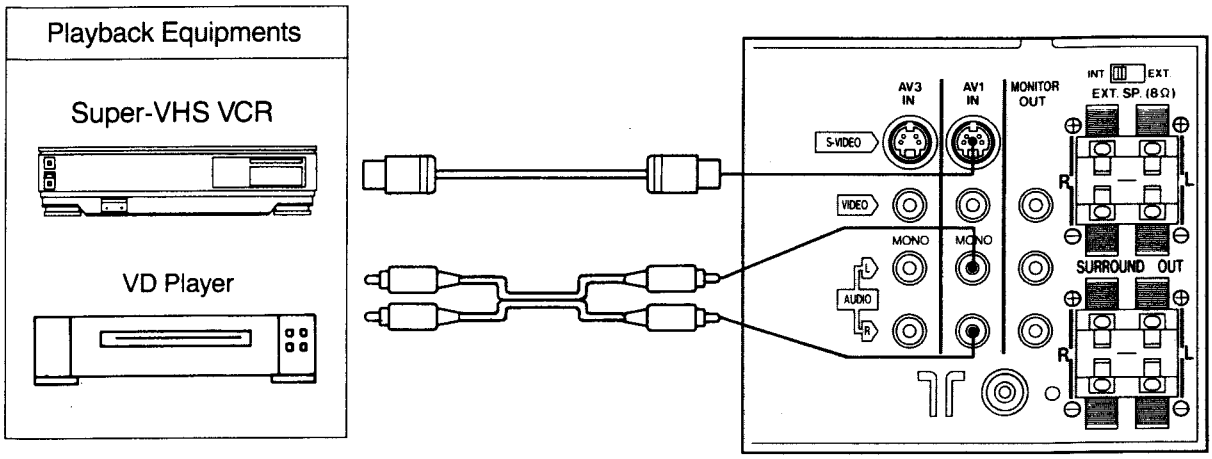
If the set is not switched off when the TV station stops broadcasting, it will automatically go to stand-by condition after 30 minutes.

Note:
This function will not operate when the Television receiver is on AV mode.

Connection

Pattern 1: Via the S-Video and Audio Terminals

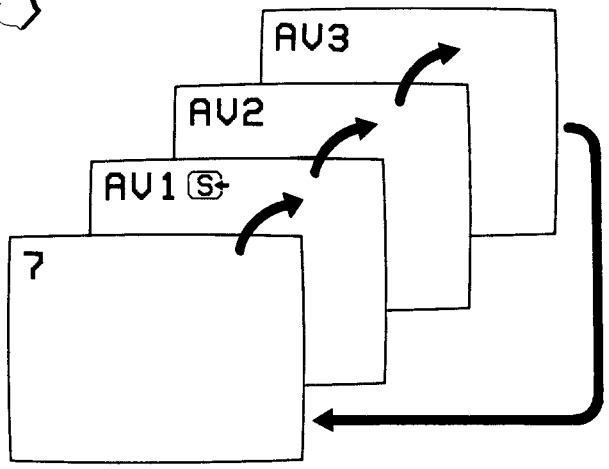
(e.g. Connecting the "AV1" mode)
Connect the "AV1" (S-Video and Audio) Terminals and Other Equipments as follows.



AV mode Select Operation on the TV Set

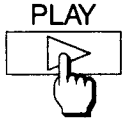
1

By pushing the "TV/AV Selection" Button, you can sequentially select TV and three AV modes (AV1, AV2 and AV3), as shown below.
Selecting mode will appear on the top left of the screen.



Note:
When the S-Video cable is connected to "S-Video" Terminal, the "S-Video" symbol will be displayed on the screen as shown left.
e.g. Connecting the AV1 (S-Video) Terminal.

2



Push the "PLAY" Button on the Connected Equipment.

Connection

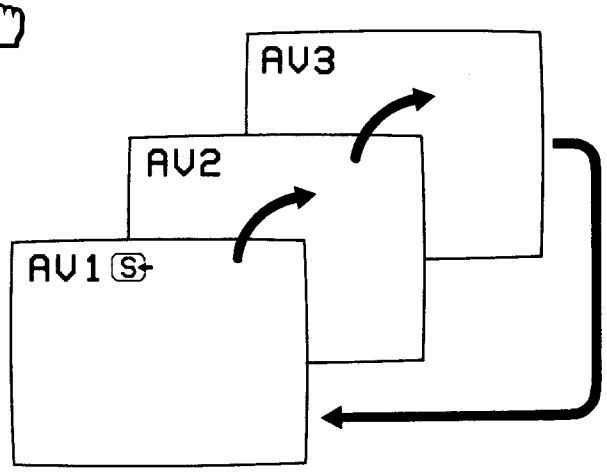
AV mode Select Operation on the Remote Control

1

Push the "TV/AV Selection" Button on the Remote Control.
Then last selected AV mode will be displayed on the screen.

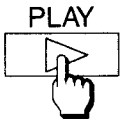
2

By pushing the "AV Selection" Button, you can sequentially select three AV modes, as shown below.



Note:
When the S-Video cable is connected to "S-Video" Terminal, the "S-Video" symbol will be displayed on the screen as shown left.
e.g. Connecting the AV1 (S-Video) Terminal.

3



Push the "PLAY" Button on the Connected Equipment.

Helpful Hint

System Button
On the AV mode, if the clear picture cannot be obtained even when the AV signal is received, push the System I Button repeatedly until the optimum image can be produced.
For operation details, refer to "System I Select Operation" on page 42 and 43.

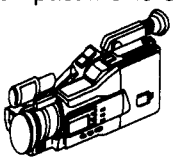
Note:
(1) When AV mode (AV1, AV2 and AV3) is selected and the selected AV mode has no AV signal, the color on TV screen will appear according to the receiving Color System.
(Refer to page 42 and 43 for details of Color System)
(2) When the S-Video cable is connected to S-Video Terminal, Input Terminal will be changed from Video to S-Video Terminal.
(3) When the Monaural VCR is played back, Connect the Monaural Audio cable to the Audio "L" (Left) Terminal.

Pattern 2: Via the Video and Audio Terminals

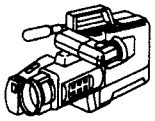
(e.g. Connecting the AV1 mode)
Connect the "AV1" (Video and Audio) Terminals and Other Equipments as follows.

Equipments

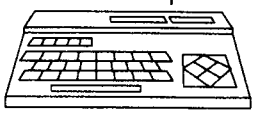
VHS Compact Movie Camera



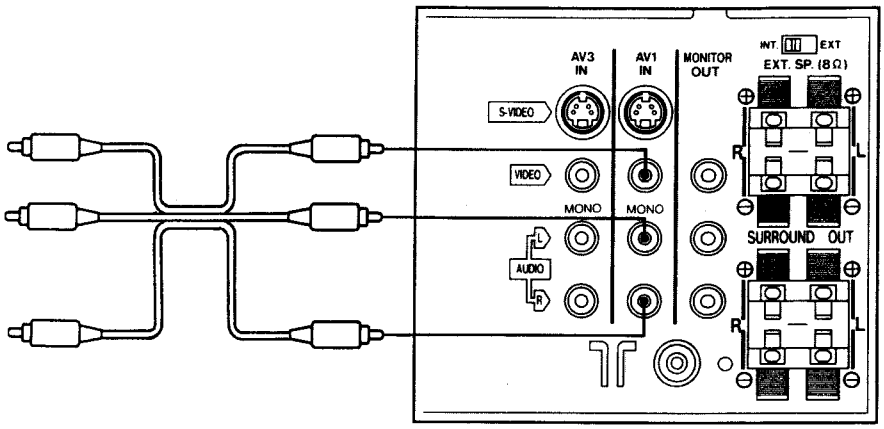
VHS Movie Camera



Home Computer



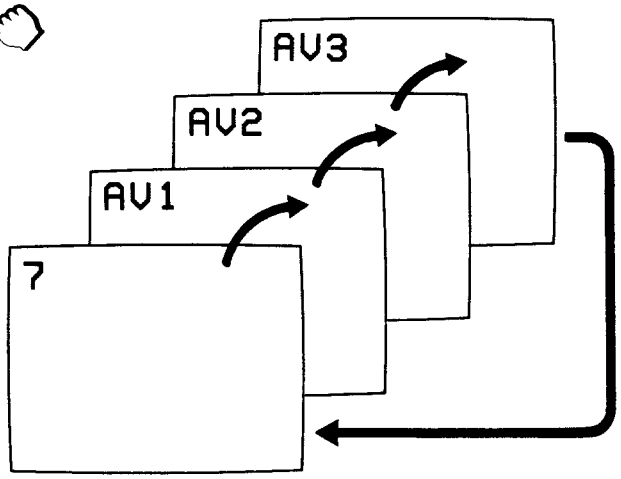
TV Game



AV mode Select Operation on the TV Set

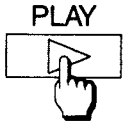
1

By pushing the "TV/AV Selection" Button, you can sequentially select TV and three AV modes (AV1, AV2 and AV3), as shown below.



Selecting mode will appear on the top left of the screen.

2



Push the "PLAY" Button on the Connected Equipment.

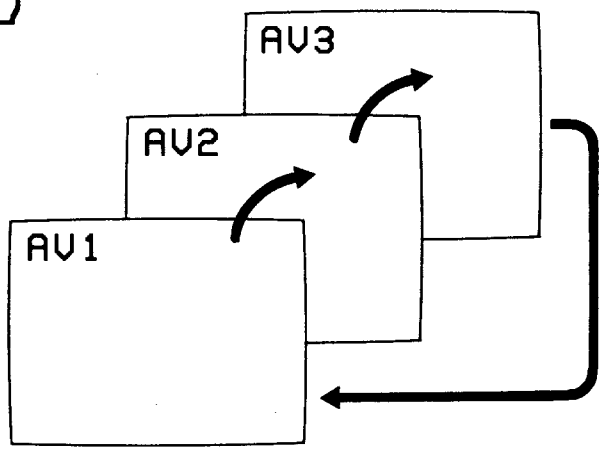
AV mode Select Operation on the Remote Control

1

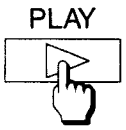
Push the "TV/AV Selection" Button on the Remote Control.
Then last selected AV mode will be displayed on the screen.

2

By pushing the "AV Selection" Button, you can sequentially select three AV modes, as shown below.



3



Push the "PLAY" Button on the Connected Equipment.

Helpful Hint

System Button
On the AV mode, if the clear picture cannot be obtained even when the AV signal is received, push the System I Button repeatedly until the optimum image can be produced.
For operation details, refer to "System I Select Operation" on page 42 and 43.

Note:

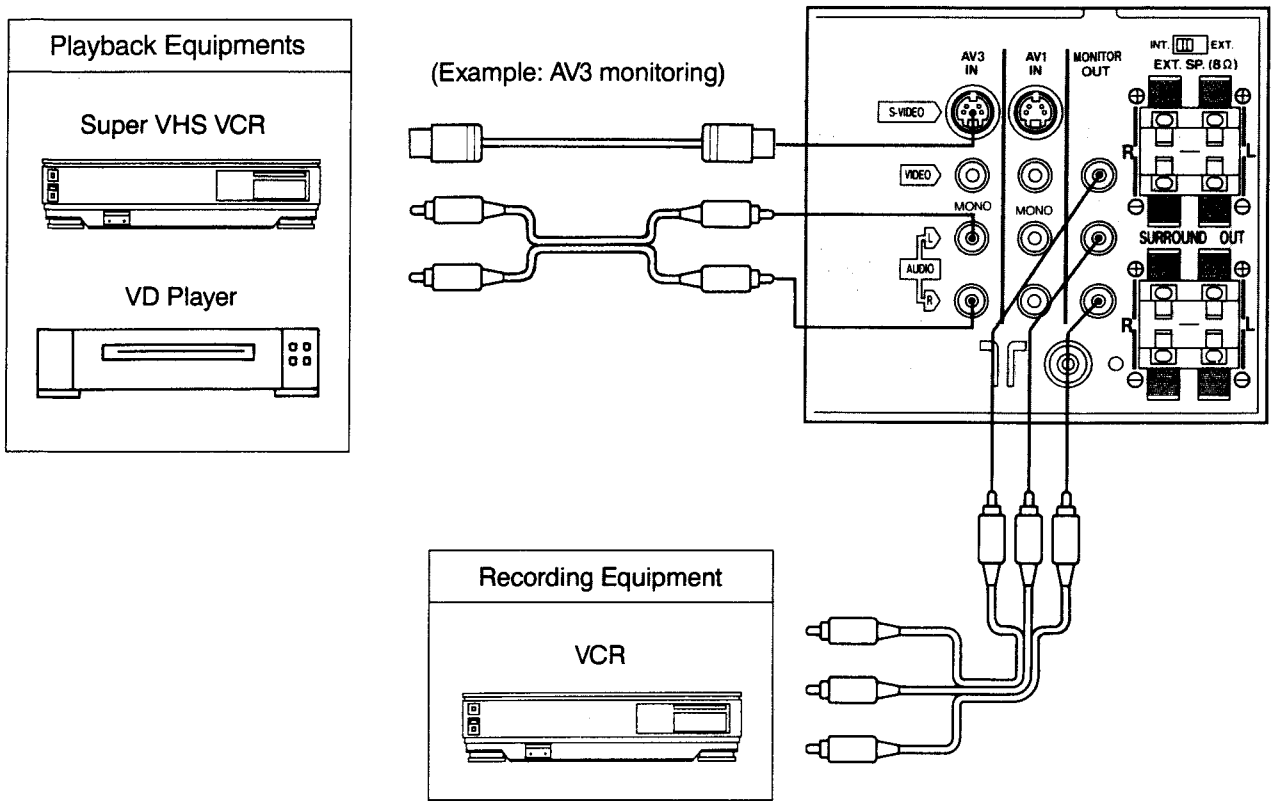
(1) When AV mode (AV1, AV2 and AV3) is selected and the selected AV mode has no AV signal, the color on TV screen will appear according to the receiving Color System.
(Refer to page 42 and 43 for details of Color System)

(2) When the S-Video cable is connected to S-Video Terminal, Input Terminal will be changed from Video to S-Video Terminal.

(3) When the Monaural VCR is played back, Connect the Monaural Audio cable to the Audio "L" (Left) Terminal.

Pattern 3: Via the "Monitor Out" Terminals

Connect the "Playback" Equipment and "Recording" Equipment via the TV set as follows.



"Monitor Out" Terminals contain signals which are on the TV screen at that time, e.g. TV programs or signals from AV1, AV2 or AV3 input.

Operation

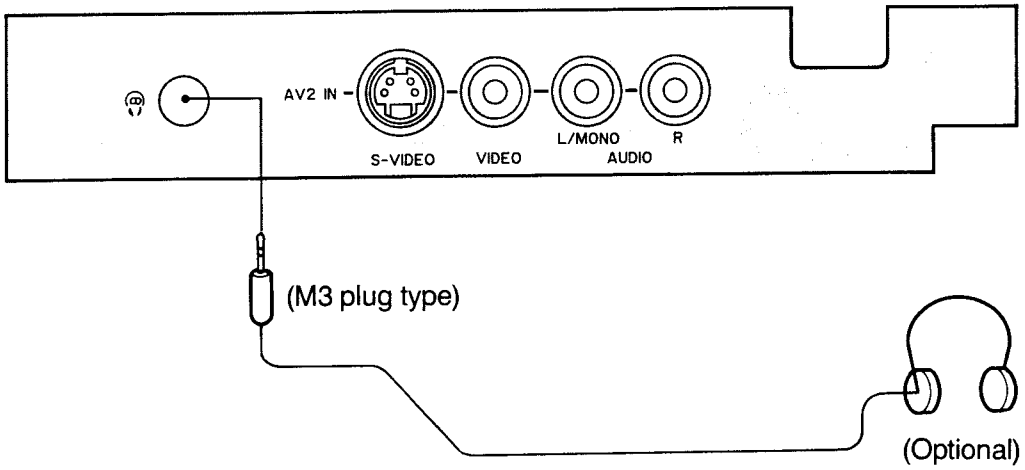
1 Select the desired AV mode.
In this case, select the AV3 mode.
For Operation in detail refer to page 20 through 23.

2 Push the "PLAY" Button on the Connected Equipment.

Note:
Never connect the same video recorder with both the VIDEO IN and VIDEO OUT Terminals on this TV set, as this would cause malfunction and could lead to accidents.

Connecting the Headphones

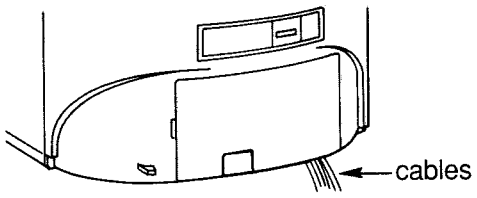
1 Connecting the headphones as follows.



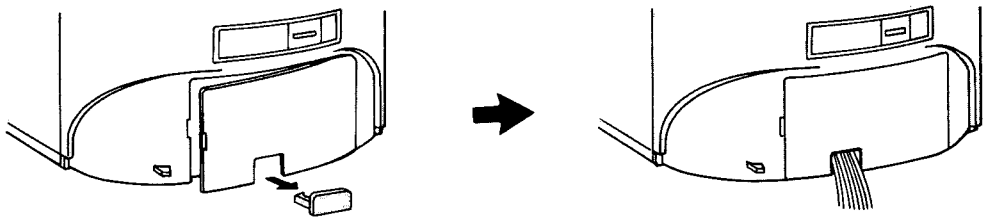
When the Headphones plug is inserted into the Headphones jack, no sound is heard from the speakers, and you can listen with the Headphones only.

Connection Cables Arrangement

1 When you connect the Terminals, dispose the cables as shown below.

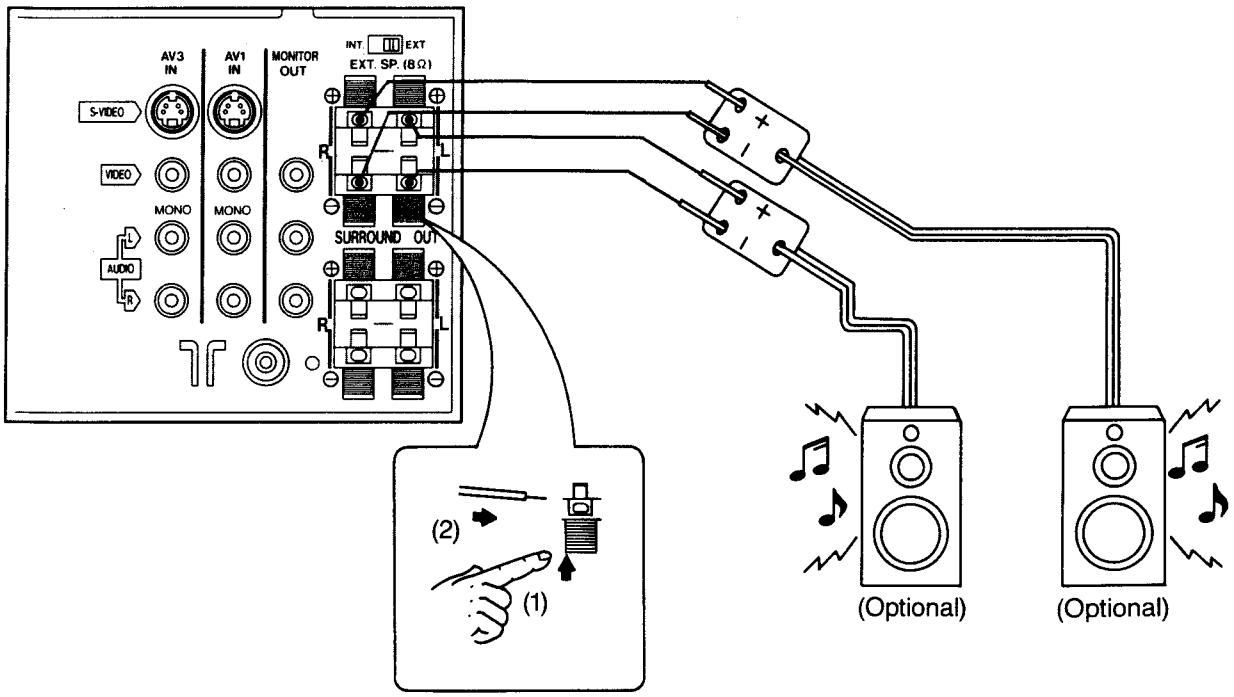


2 If the Rear Terminals Door cannot be closed, remove the cap and dispose the cables as follows.



Connecting the External Speakers

1 Connecting the external speakers as follows.



2

INT. EXT.

EXT. SP (8Ω)

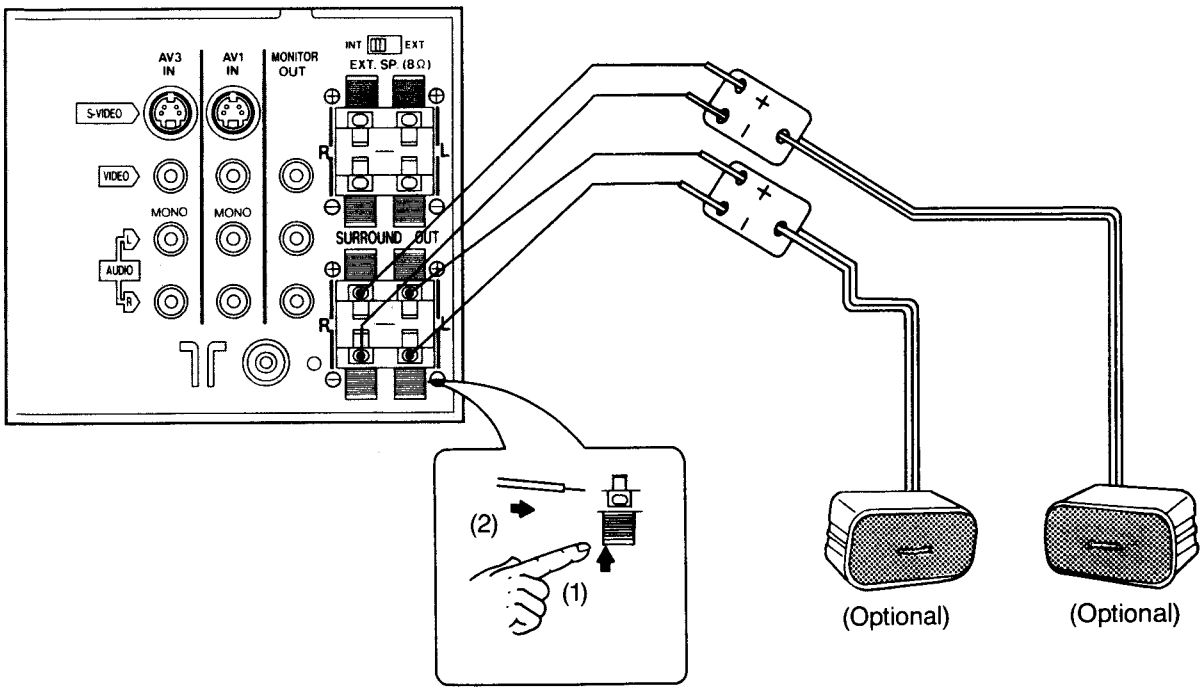
Set the "EXT." Position.
"INT." Position: Internal speakers is selected.
"EXT." Position: External speakers is selected.

Note:

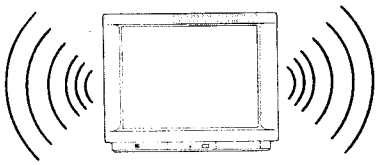
(1) If speakers cause disturbance in picture purity, locate the speakers as far as possible from the TV set.
(2) If speaker terminals are shorted, sound will be cut off.
Turn the TV set off then turn on again to reset the protection circuit.
(3) External speakers impedance 8Ω.

Connecting the Surround Speakers

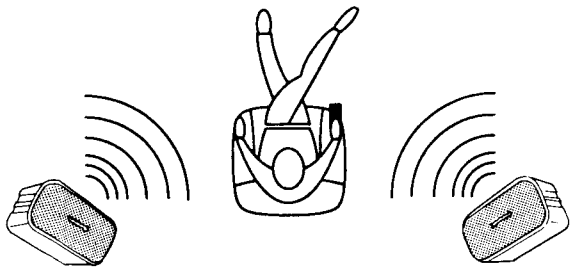
1 Connecting the surround speakers as follows.



AV surround effect is further enhanced upon connecting surround type speakers. Although it is possible to enjoy the "AV Surround Effect" with this unit alone, upon connecting separate "Surround Speakers" the presence of the enveloping sound becomes more vivid.

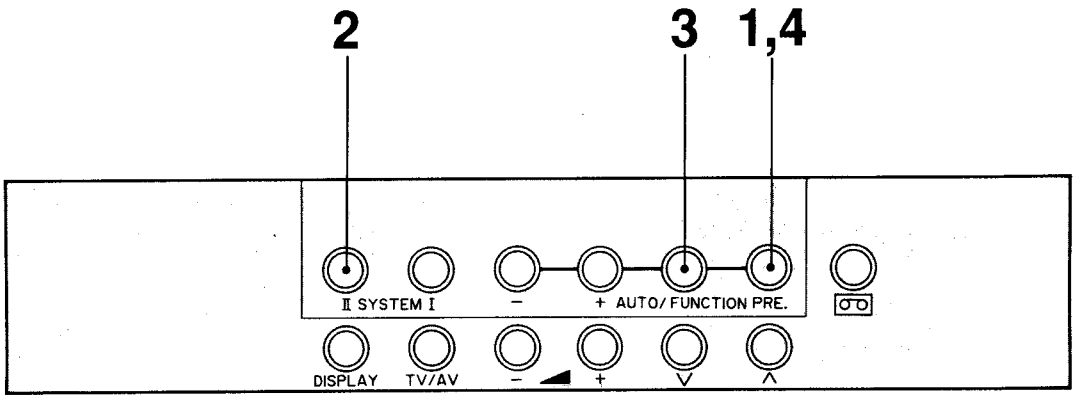


Place the surround speakers as shown left.



Note:
For Surround Operation details, refer to page 60 through 63.

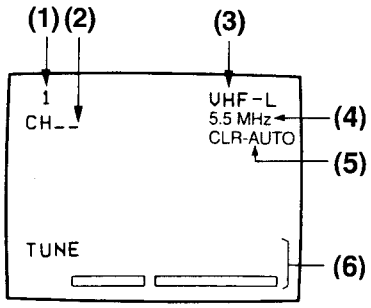
Tuning Procedure (Automatic Search)



This TV set will search automatically through all of the VHF and UHF bands.
After completion, the best tuning position is automatically memorized on each Program Number.

(TV set must be turned on.)

1



Push the "PRE." (PRESET) Button until the on-screen display will appear as shown below.

(1) Program Position Number
(2) Program Name Writing
(3) Band
(4) Sound System
(5) Color System
(6) Tuning bar

2

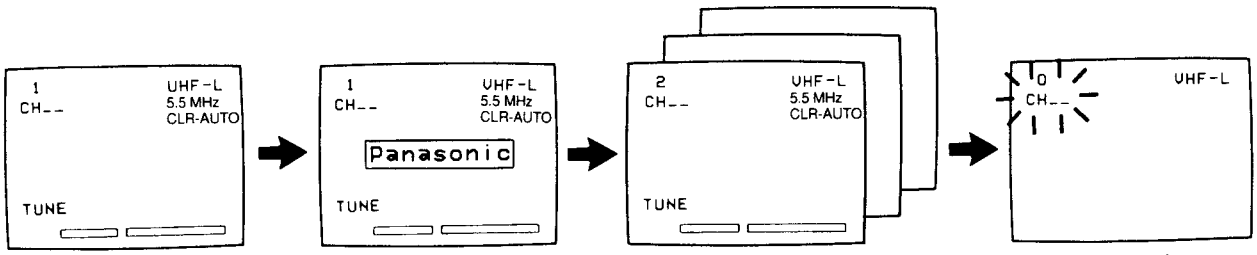
Push the "System II" Button repeatedly until the optimum sound is obtained. (For "System II" Button operation, refer to page 43.)

Tuning Procedure (Automatic Search)

3

AUTO/FUNCTION

Push the "Auto/Function" Button.



4

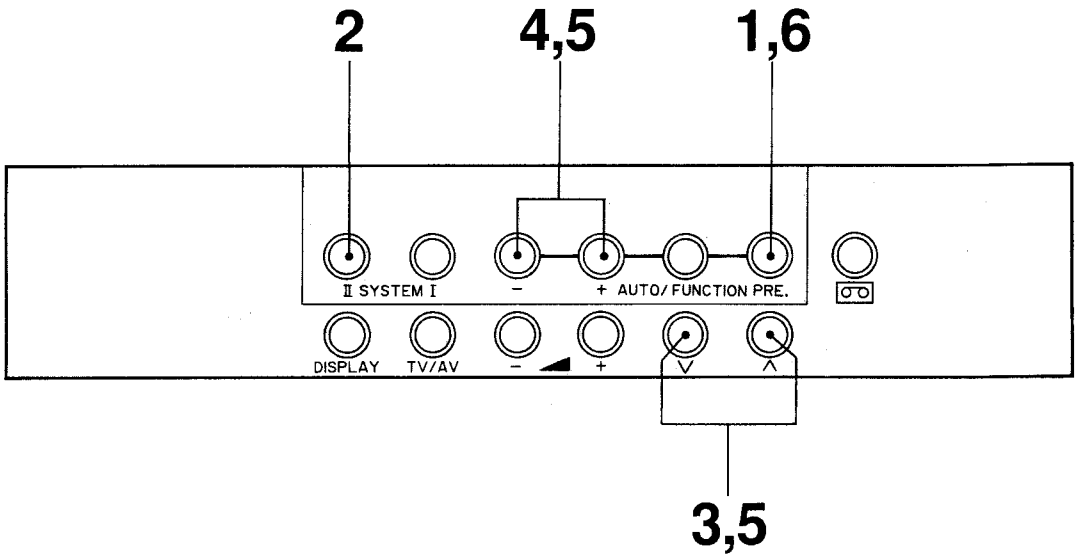
PRE.

Return the TV set to the normal operation mode by pushing this button twice.
A maximum of 30 channels can be programed.

Helpful Hint

(1) If you need the station name on the screen display together with program position, refer to the Program Name Writing operation on page 36 and 37 for operation details.
(2) After all stations are tuned, push the Program Number "Up" Button to confirm the tuning condition for each program position. If Program Position is undesired, it is possible to skip the Program Number. Please refer to the Program Number skip operation on page 38 and 39.
(3) If the broadcasting signals are extremely weak or clear picture cannot be obtained on each Program Number position even when the signal is received, push the "System I" Button repeatedly until the optimum image can be produced.
For "System I" Button operation, refer to page 42 and 43.
(4) If the sound is not clear or no sound is produced on a Program Number Position, push the "System II" Button repeatedly until the optimum sound is obtained.
For "System II" Button operation, refer to page 43.

Tuning Procedure (Manual Search)

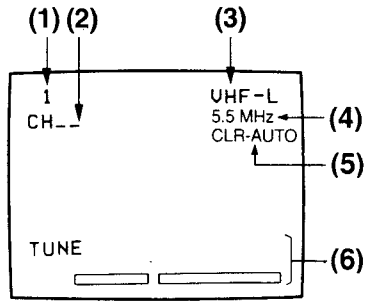


In case only few TV broadcastings can be received in your area, this Manual Search operation may be preferable.

(TV set must be turned on.)

1

Push the "PRE." (PRESET) Button until the on-screen display will appear as shown below.



(1) Program Position Number
(2) Program Name Writing
(3) Band
(4) Sound System
(5) Color System
(6) Tuning bar

2

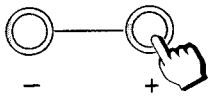
Push the "System II" Button repeatedly until the optimum sound is obtained. (For "System II" Button operation, refer to page 43.)

Tuning Procedure (Manual Search)

3

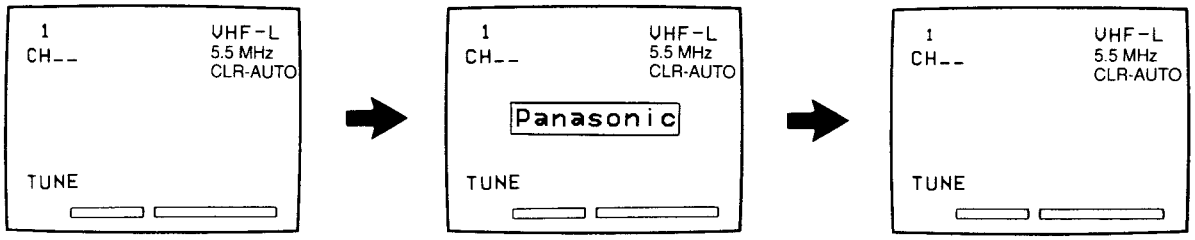
Push either the Program Number Up "∧" or Down "∨" Button to select the desired program number on which you want to tune the TV station of your choice.

4



Push either the Level Adjustment Up "+" or Down "–" Button, the TV station broadcasting on the next higher or lower frequency will be automatically tuned and memorized.

Upward Search



Search

The best tuning position is auto-matically memorized

If an undesired TV station is received, push the same button again until the desired TV station is tuned.

5

Repeat steps 3 and 4 to tune all the available TV stations on the remaining program numbers.

Note:

Ensure that a new program number is set (Step 3) before tuning the next station.

6

Return the TV set to the normal operation mode by pushing this button 3 times.

A maximum of 30 channels can be programed.

Helpful Hint

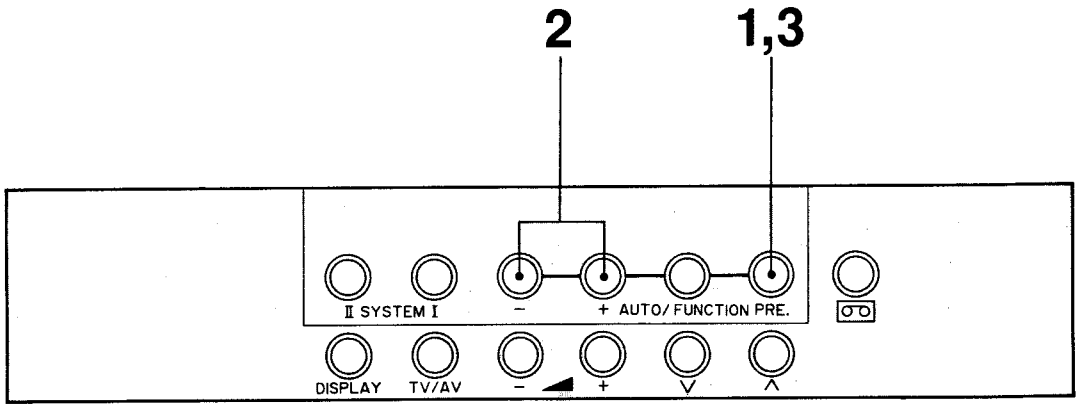
(1) If you need the station name on the screen display together with program position, refer to the Program Name Writing operation on page 36 and 37 for operation details.

(2) After all stations are tuned, push the Program Number "Up" Button to confirm the tuning condition for each program position. If Program Position is undesired, it is possible to skip the Program Number. Please refer to the Program Number skip operation on page 38 and 39.

(3) If the broadcasting signals are extremely weak or clear picture cannot be obtained on each Program Number position even when the signal is received, push the "System I" Button repeatedly until the optimum image can be produced. For "System I" Button operation, refer to page 42 and 43.

(4) If the sound is not clear or no sound is produced on a Program Number Position, push the "System II" Button repeatedly until the optimum sound is obtained.
For "System II" Button operation, refer to page 43.

Fine Tuning Operation



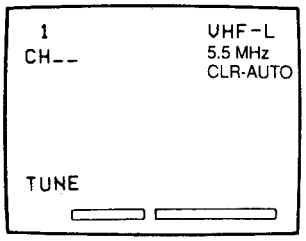
Under normal reception condition, this function is not used.
However, in areas of poor reception or constant interference, a slight adjustment of the tuning may improve the picture and sound quality.

(TV set must be turned on.)

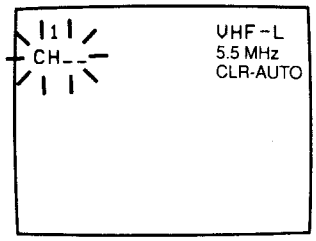
1

Push the "PRE." (PRESET) Button three times.
The on-screen display will appear as shown below.

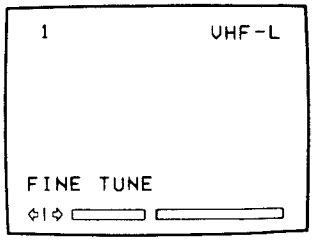
First push



Second push

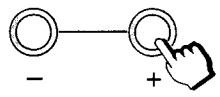


Third push



Fine Tuning Operation

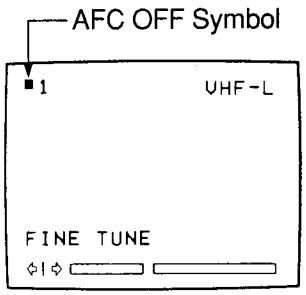
2



Push and hold the Level Adjustment Up "+" or Down "–" Button until picture and sound are improved.

When the above fine tuning operation has been performed, the AFC function is deactivated, so that the "■" symbol appears to the left of the Program Number.

The on-screen display will appear as shown.



3

Return the TV set to the normal operation mode by pushing this button once.

Fine Tuning cancel operation

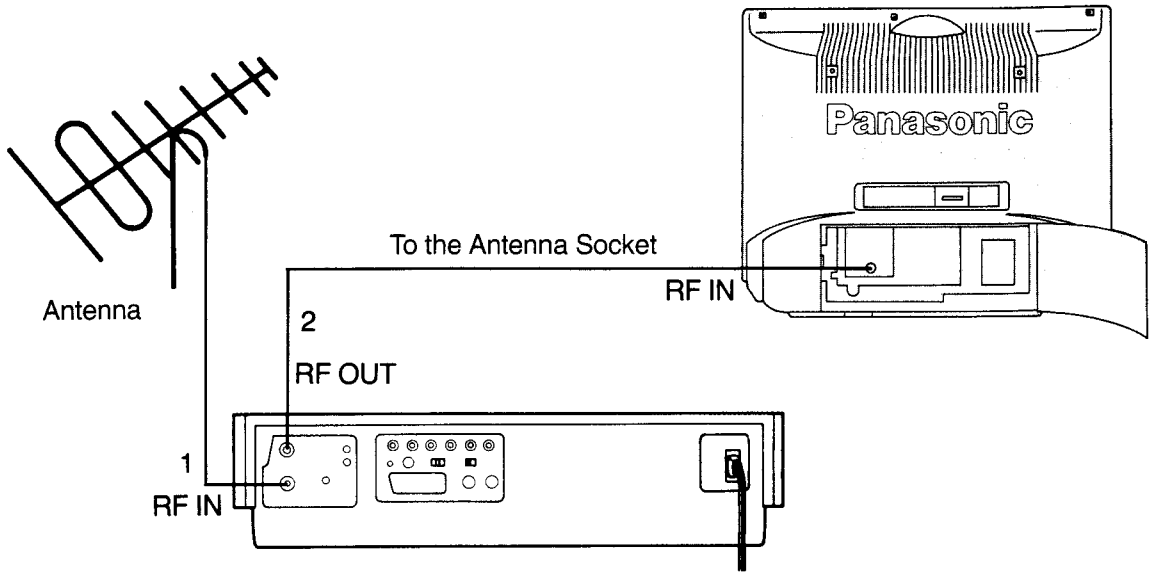
Activating the AFC (Automatic Frequency Control) Function.
If you later want to reset this Program Number to the automatically tuned condition with activated AFC function, perform the following operation step:

(1) Select the program position conditioned on the AFC off position.
(2) Operate the Tuning procedure (Manual Search). Refer to page 30 and 31.

Tuning the TV Set to the VCR

Connection

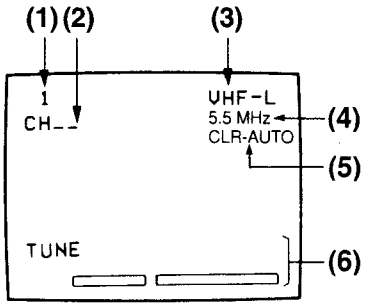
1. Connect the external Antenna to the RF Input Socket on the VCR.
2. Connect the Antenna terminal on the TV set to the RF Output Socket on the VCR with the supplied DIN-DIN Coaxial Cable.



The adjustments described on this page are not necessary, if the VCR is connected to the TV set via the Video/Audio output sockets.

1

Push the "PRE." (PRESET) Button on the TV set until the on-screen display will appear as shown below.



(1) Program Position Number
(2) Program Name Writing
(3) Band
(4) Sound System
(5) Color System
(6) Tuning bar

2

Select the "VCR" position by using "0/VCR" Button on the Remote Control.

Tuning the TV Set to the VCR

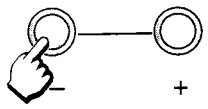
3

Push the VCR On/Off Button on the VCR to turn the VCR On.

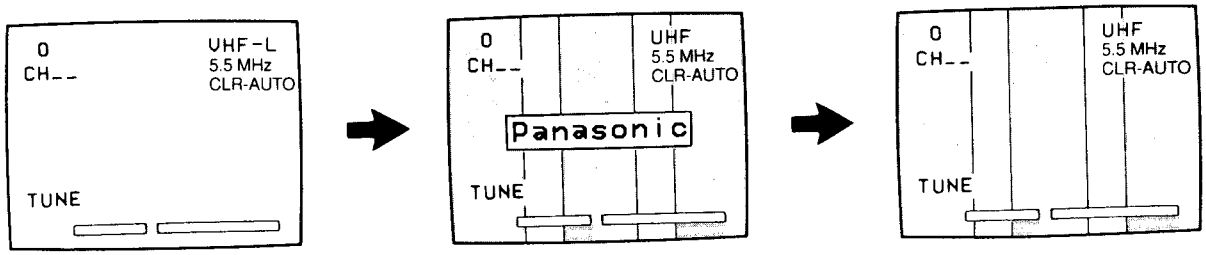
4

Set the "Test Signal" Switch to "TEST" position on the VCR.

5



Push the MANU. Down "–" Button on the TV set, the TV station broadcasting on the UHF will be automatically tuned and memorized. Confirm on the TV set that the received test pattern is as shown below.



Note:
This test pattern is used on the Panasonic/National VCR only.

6

Return the TV set to the normal operation mode by pushing this button three times.

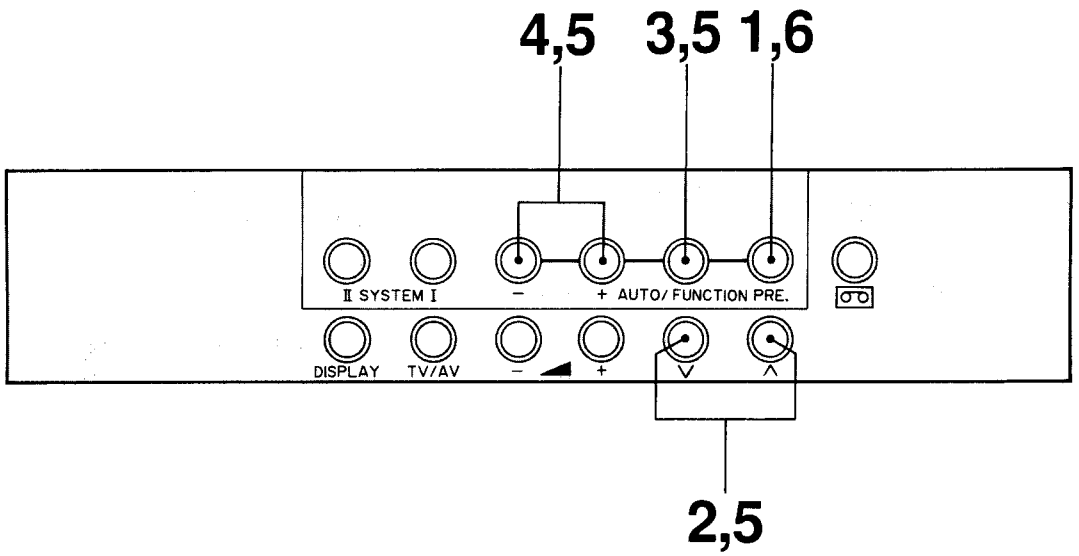
7

Set the "Test Signal" Switch to "Off" on the VCR.
The TV is now ready to receive the RF output signal from the VCR.

Helpful Hint

If you want the station name on the screen display together with program position, for operation details, refer to the Program Name Writing operation on page 36 and 37.

Program Name Writing Operation



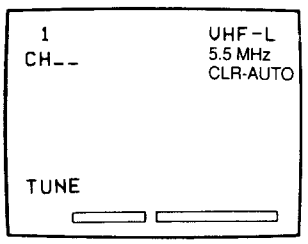
This function is used, if you want to write the Program Name on each Program Number.

(TV set must be turned on.)

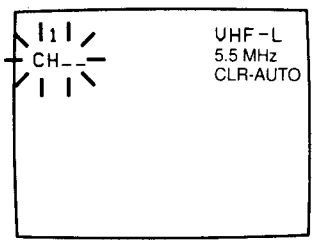
1

Push the "PRE." (PRESET) Button twice.
The on-screen display will appear as shown below.

First push



Second push



Program Name Writing Operation

2

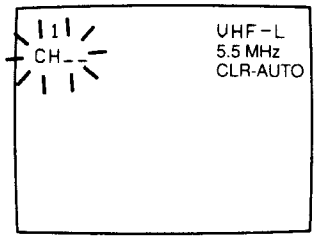
Select your desired program number position.

3

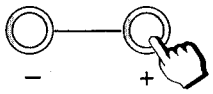
AUTO/FUNCTION

By pushing this button, you can select one of the four columns as follows.

Each time this button is pushed, the next column selected will be flashing.



4



Select your desired character by pushing these buttons.
Each time " + " Button is pushed, the character will be changed as follows.

0→1→2.....8→9→A→B.....X→Y→Z→ –

Each time "–" Button is pushed, the character will be changed in reverse direction.

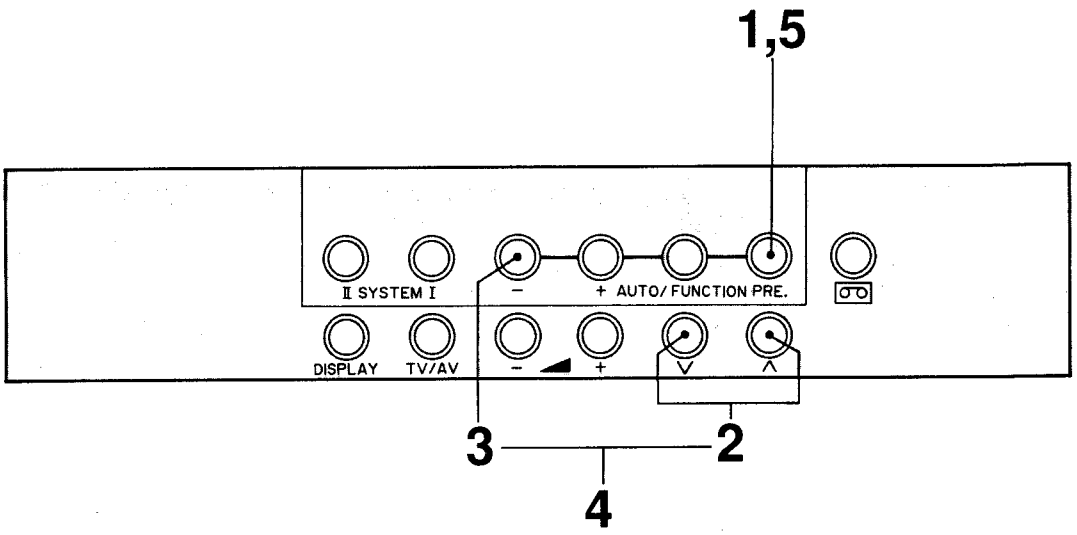
5

Repeat steps 2 through 4 for the remaining program positions.

6

After the Program Name Writing operation is completed, push the "PRE." (PRESET) Button twice.

Program Number Skip Operation



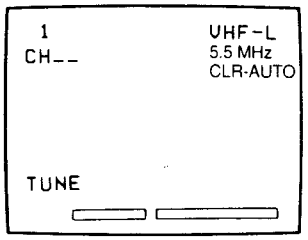
This function makes it possible to skip the program numbers on which no TV station are tuned. This function is only effective when selecting TV station by pushing the program number Up or Down Button either on the TV set or the Remote control.

(TV set must be turned on)

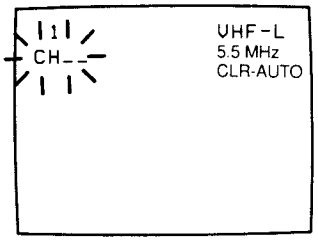
1

Push the "PRE." (PRESET) Button twice.
The on-screen display will appear as shown below.

First push



Second push

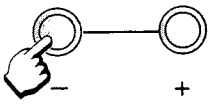


Program Number Skip Operation

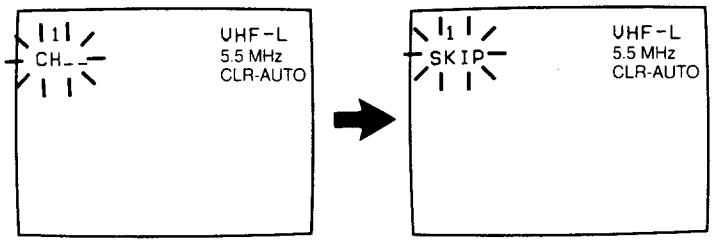
2

Select a program number you want to skip.

3



Push the " – " Button.
The on-screen display will be changed as shown below.



The "SKIP" Indicator will appear.
Then Skip function is set on a program position.

4

Repeat steps 2 and 3 for the remaining undesired program position.

5

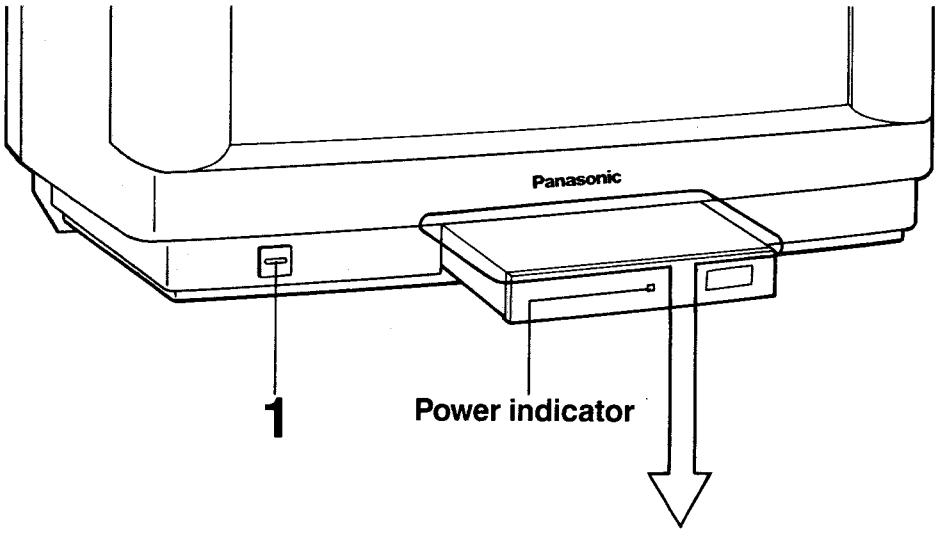
After the skip operation is completed, push the "PRE." (PRESET) Button twice.

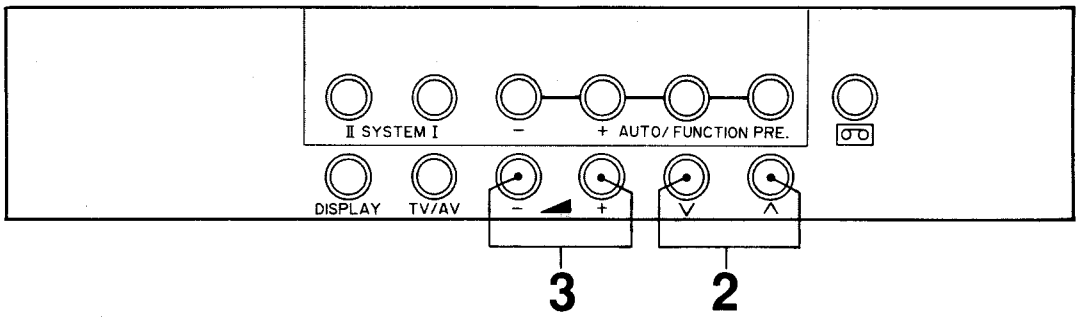
How to cancel the skip function

Method:

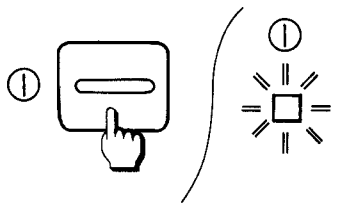
(1) Push the "PRE." (PRESET) Button twice.
Refer to Step 1 on page 38.
(2) Select the skipped program number by using program number "Up" or "Down" Button.
Refer to Step 2 on this page.
(3) Push the "–" Button.
The on-screen indicator will be changed from "SKIP" to "- - - -".
Then skip function will be canceled.
(4) Repeat steps (2) and (3).
(5) Push the "PRE." (PRESET) Button twice.

Basic Operation on the TV Set





1

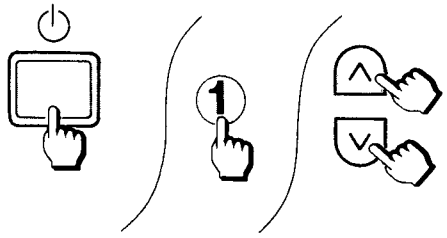


Power on/off operation

Push the "Power Switch" to turn the TV set on.
Power indicator will light up.

If the on-screen display does not appear, the TV set is in stand-by condition. Then push the Program Number "Up" or "Down" Button on the TV set.

Push the "Power Switch" again to turn the TV set off.



Note:

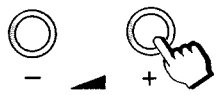
In the stand-by condition, it is able to turn the TV set on by pushing the "Power (Stand-by)" Button, "Direct Program Number Selection" Buttons (0—9) and Program Number Up and Down Buttons on the remote control.

Basic Operation on the TV Set

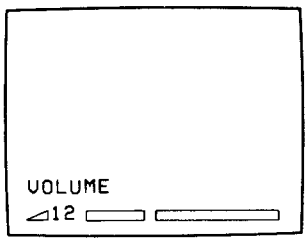
2

Program Number Up/Down Operation
Push the Program Number Up "∧" Button to select the higher programs.
Push the Program Number Down "∨" Button to select the lower programs.

3

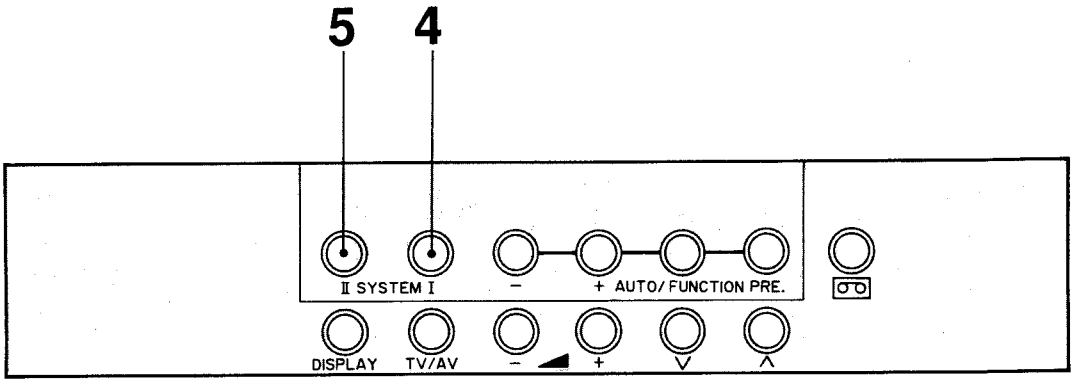


Volume Up/Down Operation
The sound level can be adjusted in steps.
Push the Volume Up " + " Button to increase the sound level.
Push the Volume Down " – " Button to decrease the sound level.



On-screen display will appear as shown.

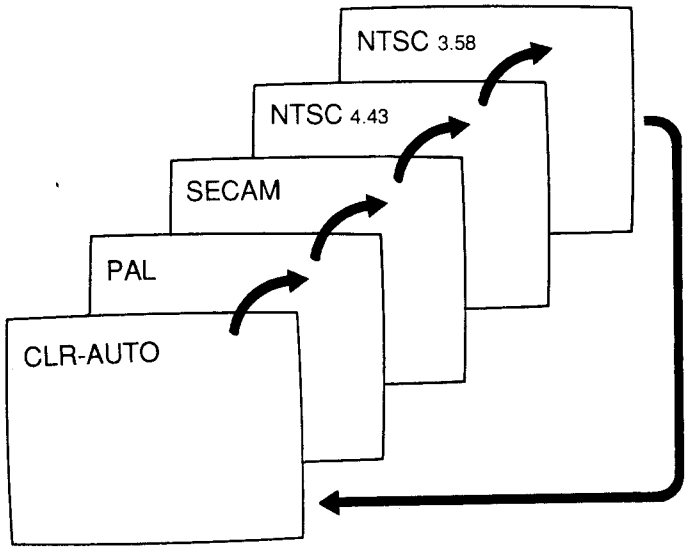
To be continued ➡



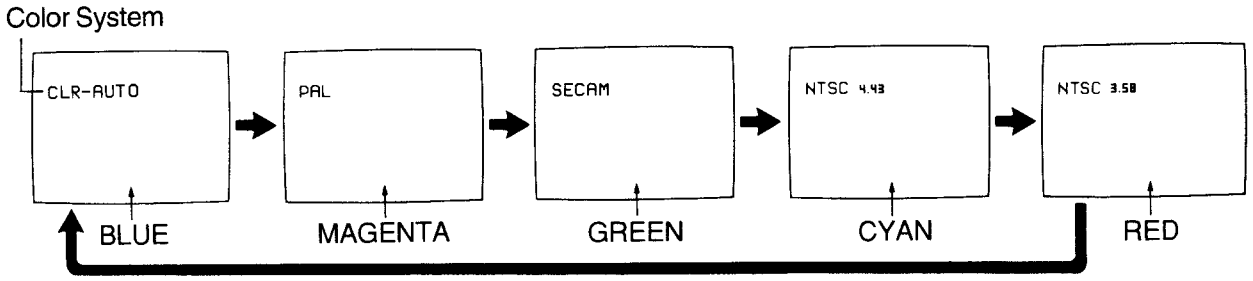
4

System I Select Operation

Normally, the System I Button is automatically set to the CLR-AUTO Mode. If the clear picture cannot be obtained even when the Broadcasting or AV signal is received, push the "System I" Button repeatedly until the optimum image can be produced. The selected system mode on each Program Number position is automatically memorized.
The on-screen will be changed as shown below.



When the signals are weak or cannot be received under the "Picture Noise Reduction OFF" condition (refer to page 67) and on the AV mode, the color on TV screen will appear according to the receiving Color System. By pushing the "System I" Button, the color on TV screen will be changed as shown below.



5

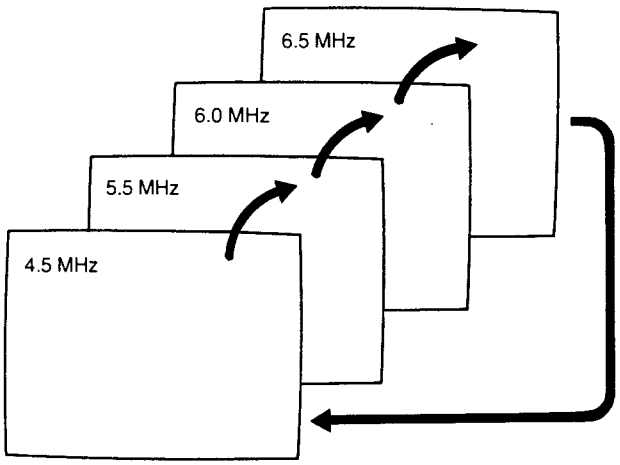
System II Select Operation

(This Button is used only on TV mode)

When the sound is not clear or no sound is produced on a Program Number Position, push the System II Button repeatedly until the optimum sound is obtained.

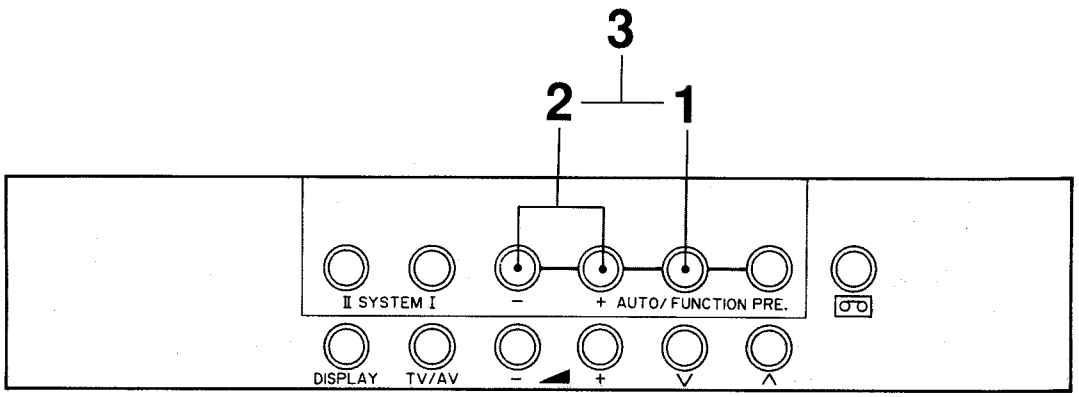
The selected system mode on each Program Number Position is automatically memorized.

The on-screen will be changed as shown below.



General Operation on the TV Set

Picture and Sound Control



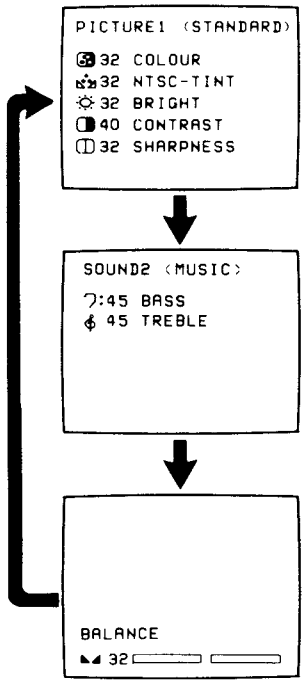
Picture and Sound have been set according to the factory-preset levels.
You can change these settings according to your desired level.
However you can change only the last function menu before standby function is enabled.
When you want to set the other menu, use the "Picture Menu" Button or "Sound Menu" Button on the remote control.

1

AUTO/FUNCTION

By pushing the "Auto/Function" Button, the on-screen display will appear.

General Operation on the TV Set



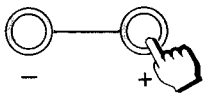
By pushing the "Auto/Function" Button repeatedly, the on-screen display will be changed as shown.

Select the desired function.

COLOUR
↓
NTSC-TINT
↓
BRIGHT
↓
CONTRAST
↓
SHARPNESS
↓
BASS
↓
TREBLE
↓
BALANCE

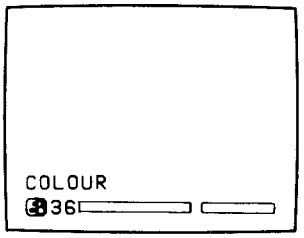
Note:
"NTSC-TINT" indicator will appear on the screen only if "NTSC4.43" or "NTSC3.58" is selected.

2



(e.g. Selecting the "COLOUR" function)

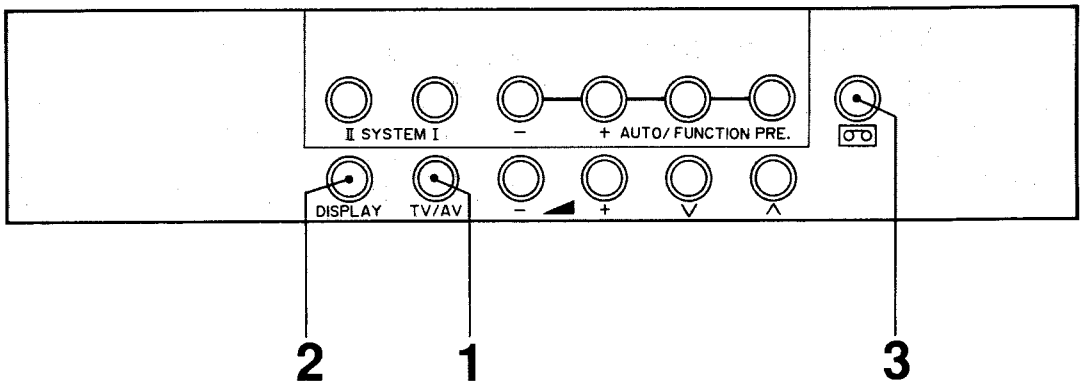
By using the Level Adjustment Up "+" or Down "–" Button, the on-screen display of the level indicator will appear as shown.



Push the "+" Button to increase the level of selected function.
Push the "–" Button to decrease the level of selected function.

3

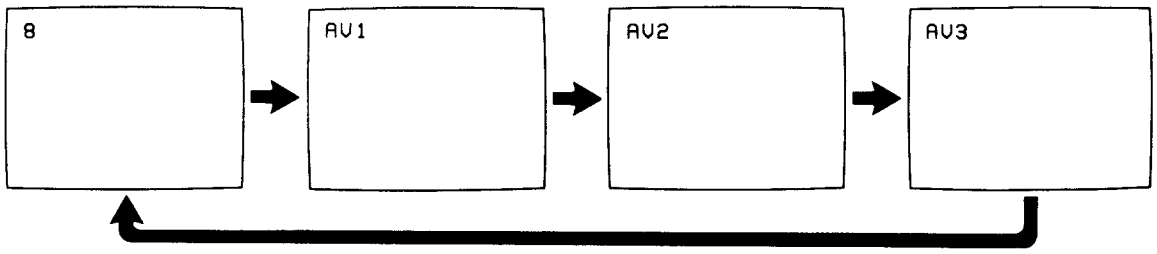
Repeat steps 1 and 2 for the remaining functions.



1

AV modes (AV1, AV2 and AV3) Select Operation

Push the "TV/AV Selection" Button to select the TV and AV modes (AV1, AV2 and AV3).
By pushing this Button, the on-screen display will be changed as shown below.



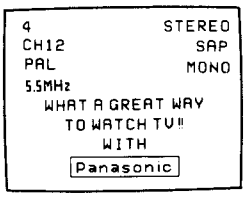
Note:

(1) When AV mode (AV1, AV2 and AV3) is selected and the selected AV mode has no AV signal, the color on TV screen will appear according to the receiving Color System.
(Refer to page 42 and 43 for details of Color System)

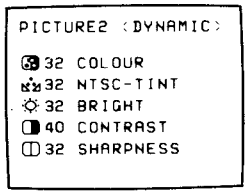
(2) When TV mode is selected, the last Program Number will appear on the screen.

2

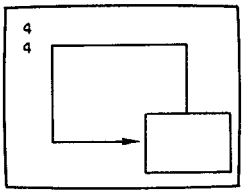
Display Button
Push the "Display" Button, the on-screen display will appear as shown below.



Actual Condition



General Operation Demonstration
Picture Menu
Sound Menu
Surround Menu



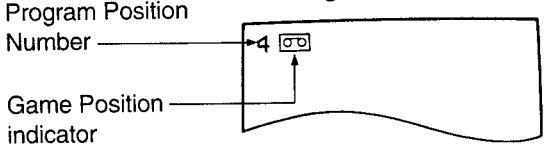
Picture-in-Picture Operation Demonstration
Sub picture Moving
Main picture and Sub Picture exchanging
Channel Search

Push again the "Display" Button, the on-screen display will disappear.

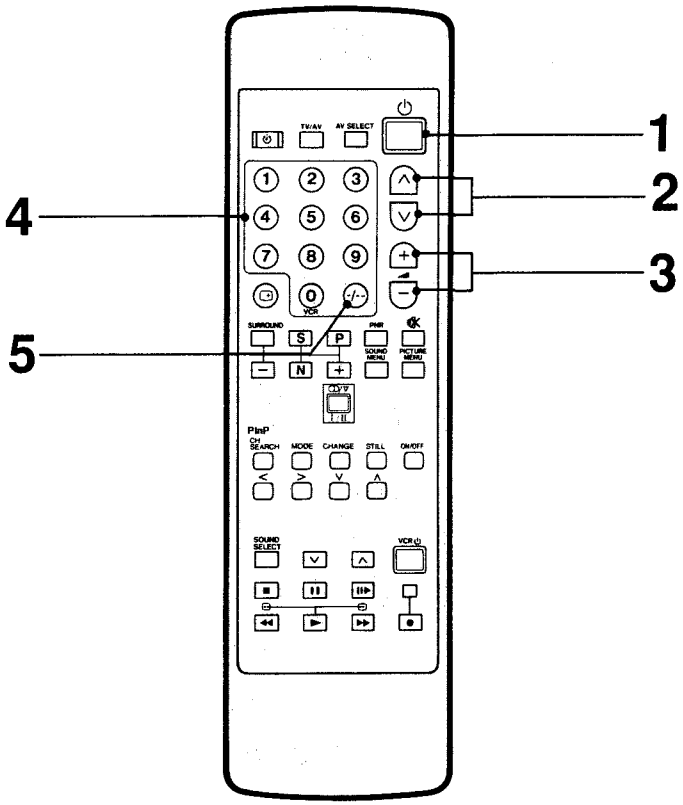
Note:
When this button is pushed, the Picture and Sound menu will change to Picture 2 (DYNAMIC) and Sound 2 (MUSIC). And each level will be changed to Normal mode. For Picture and Sound menu details, refer to Picture and Sound Operation on page 56 through 59.

3

Game Position Button
By pushing the "Game Position" Button, reproduction of irregular signals such as certain TV games and rental video tapes will be improved.
This function is effective when the RF IN Terminal is connected.
The "Game Position" indicator will appear as shown below.
The on-screen display will disappear automatically.
Push again this button to cancel.

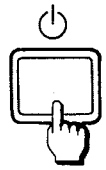


Basic Operation on the Remote Control



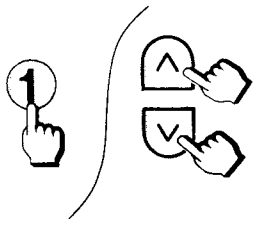
The Remote Control can only be used when the "Power" Button is in the on condition. (The Power indicator on the TV set lights up)

1



Power (Stand-By) Button
Push this button to turn the TV set on.

Push it again to turn the TV set off.

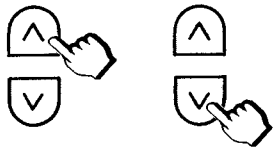


It is able to turn the TV set on by pushing the "Direct Program Number Selection" buttons (0—9) and the "Program Number Up or Down" Button.

Note:
Do not leave the TV set in the stand-by condition for a long period of time.
It is better to switch it off when you are away for extended period of time.

Basic Operation on the Remote Control

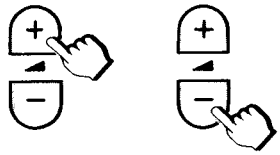
2



Program Number Up/Down Buttons
Push the Program Number Up "∧" Button to select the higher program numbers.

Push the Program Number Down "∨" Button to select the lower program numbers.

3



Volume Up/Down Buttons
Push the Volume Up "+" Button to increase the sound level.

Push the Volume Down "–" Button to decrease the sound level.

4

Direct Program Number Selection Buttons
One digit program number
(Program numbers 0-9)
You can select the numbers 0 to 9 directly.

e.g. Selecting program number "7",
push the "7" Button.

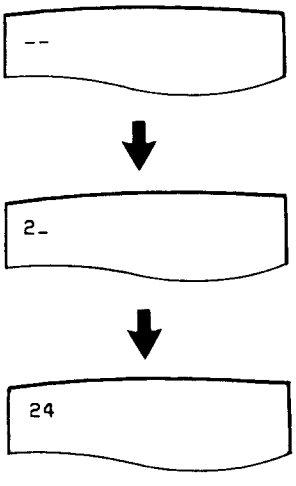
5

Two digit program number
(Program numbers 10-29)
e.g. Selecting program number "24"

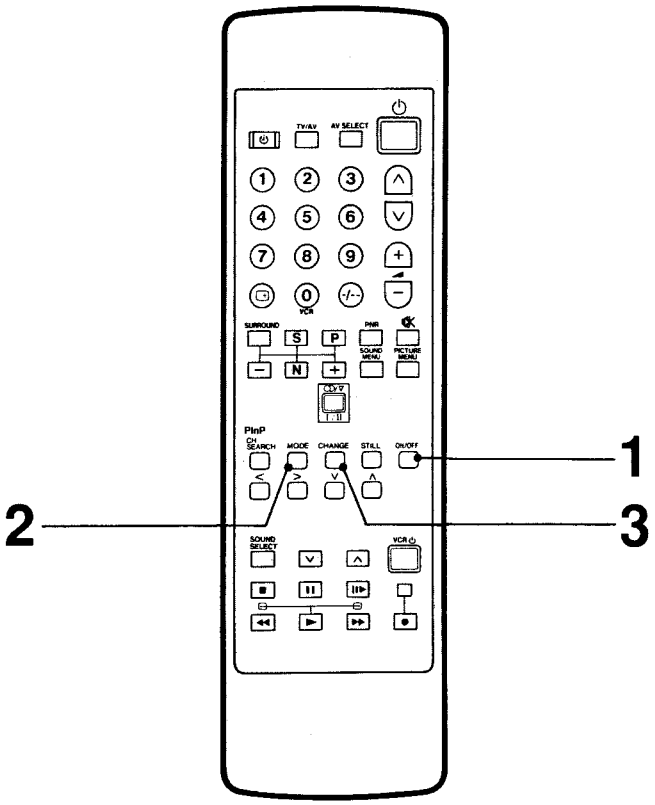
Push the "- / - -" Button.
The on-screen display will appear as shown.

Push the "2" Button.

Push the "4" Button.



Picture-in-Picture Operation



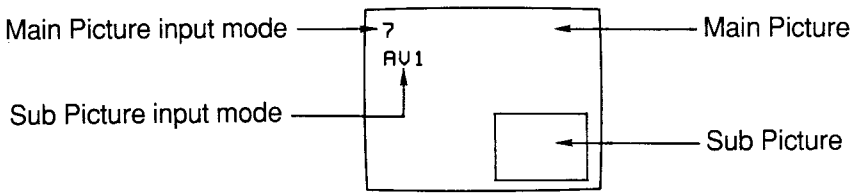
Features:
This mode displays both the TV picture and the picture from an AV source on the screen, for convenience monitoring of AV input while watching TV.
The sound of the sub picture is not heard.

1

ON/OFF

ON/OFF Button

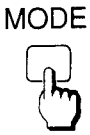
Push the "ON/OFF" Button to superimpose a small picture in the main picture as shown below.

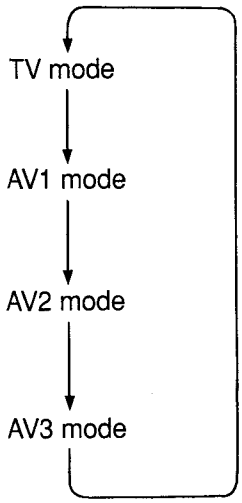


To cancel the Picture-in-Picture function:
(1) Push the "ON/OFF" Button.
(2) Turn off the TV set with the "Power Switch" or Power (Stand-by) Button.

Picture-in-Picture Operation

2



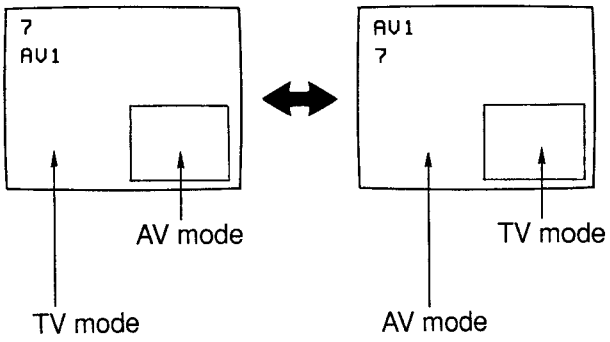


MODE Button
To change the mode of the sub picture, push the "MODE" Button.
At every push of the "MODE" Button, the mode of the sub picture changes as shown.

The AV modes "AV1", "AV2" and "AV3" refer to the AV sources connected to the AV Input Connectors of the TV set.

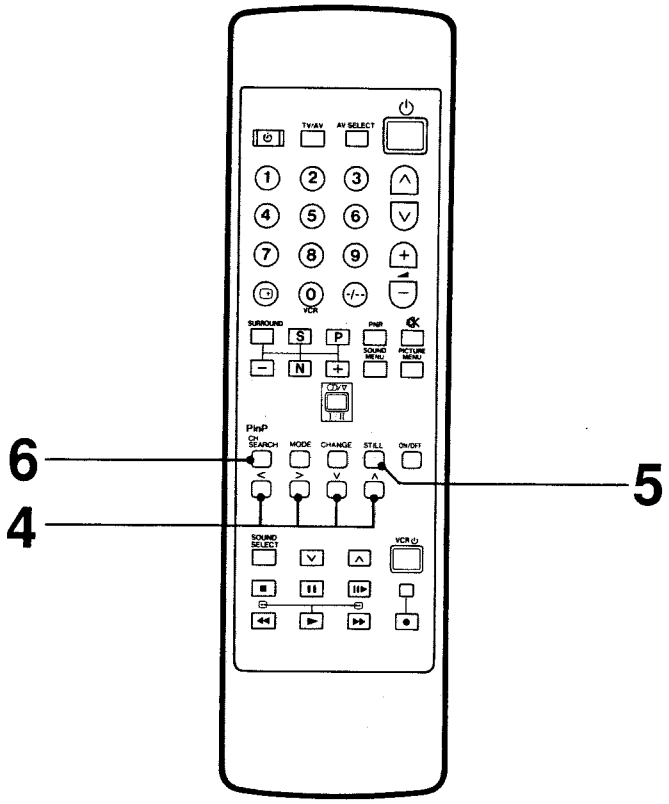
3

CHANGE Button
Push the "CHANGE" Button to exchange from Main picture to Sub picture and vice versa.

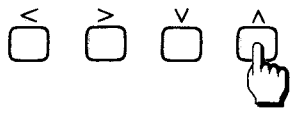


To be continued ➜

Picture-in-Picture Operation

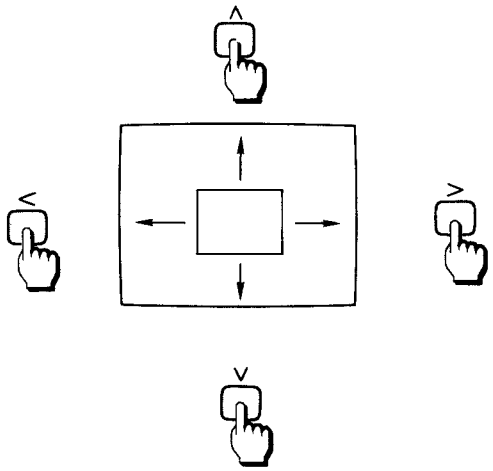


4



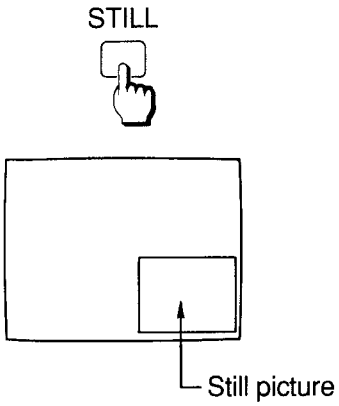
Position Buttons

By pushing each "Position" Button, you can easily select the desired position of the sub picture in the screen.



Picture-in-Picture Operation

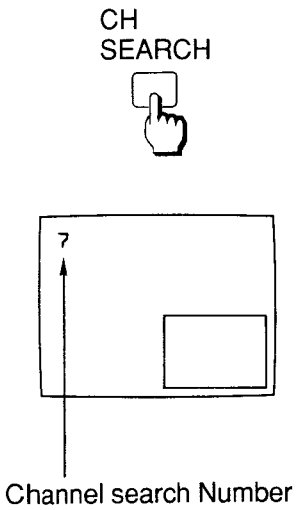
5



STILL Button
This function can be used to freeze the action on the screen and display a still picture.

Push the "STILL" Button to freeze the moving picture into a still picture.

6



CH (Channel) SEARCH Button
This function can only be used when the Main picture is in AV mode.

By pushing this button, it is possible to search through all program positions and display a picture on the sub picture screen.

How to watch the TV program

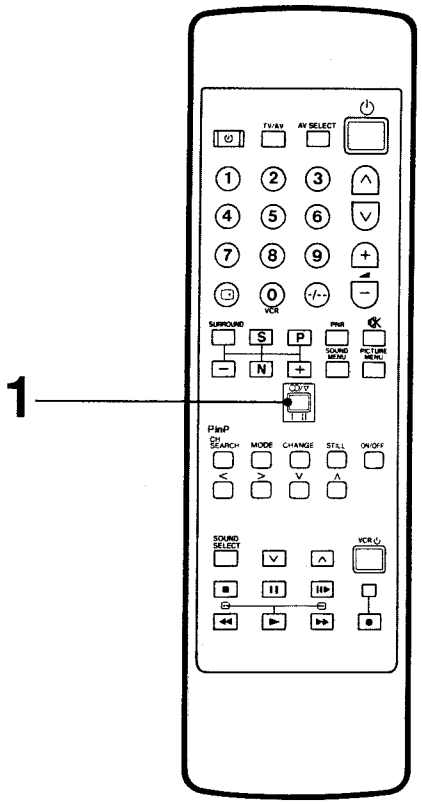
(1) You can choose the desired program position by pushing "ON/OFF" Button during "Channel Search" operation. Then selected program position will display a still picture on the sub picture screen.
(2) Push the "CHANGE" Button to exchange from Main picture to Sub picture. And you can watch the selected program position.

Helpful Hint

The size of the sub picture varies according to the color system of the input signals due to the difference of field frequency (50 Hz to 60 Hz) as shown below.

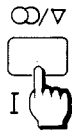
Main Picture	Sub Picture	Size of Sub Picture
Same field frequency for example PAL ——— PAL NTSC 3.58 ——— NTSC 4.43 SECAM ——— PAL		STANDARD
NTSC 3.58, NTSC 4.43 PAL 60Hz or SECAM 60Hz	PAL, SECAM or NTSC 50Hz	Slightly bigger than STANDARD
PAL, SECAM or NTSC 50Hz	NTSC 3.58, NTSC 4.43 PAL 60 Hz or SECAM 60 Hz	Slightly smaller than STANDARD

Stereo Reception



When a stereo, dual-soundtrack or monaural program is being received, the on-screen indicates to inform you of the type of broadcasts.

1



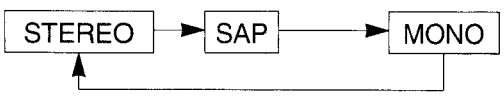
Stereo/Bilingual Sound Selection Button

Sound output can be selected by pushing "Stereo/Bilingual Sound Selection" Button.

A push of this button will display Audio Menu. Audio options broadcast to the viewer are in Red.

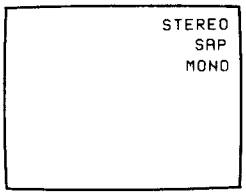
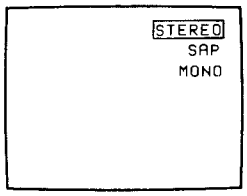
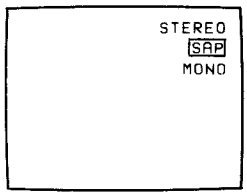
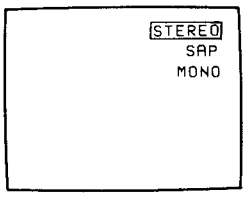
- STEREO — Dual Audio channel reception.
- SAP——— Second Audio program (bilingual programing, etc.)
- MONO—— Single Audio channel reception.

To change Audio Modes, push "Stereo/Bilingual Sound Selection" Button until Blue background indicates the Audio Mode desired.
The on-screen display will be changed as shown below.



Note:
If the stereo signal is weak or the receiving condition extremely poor, it is recommendable to switch to the "Mono" Mode.

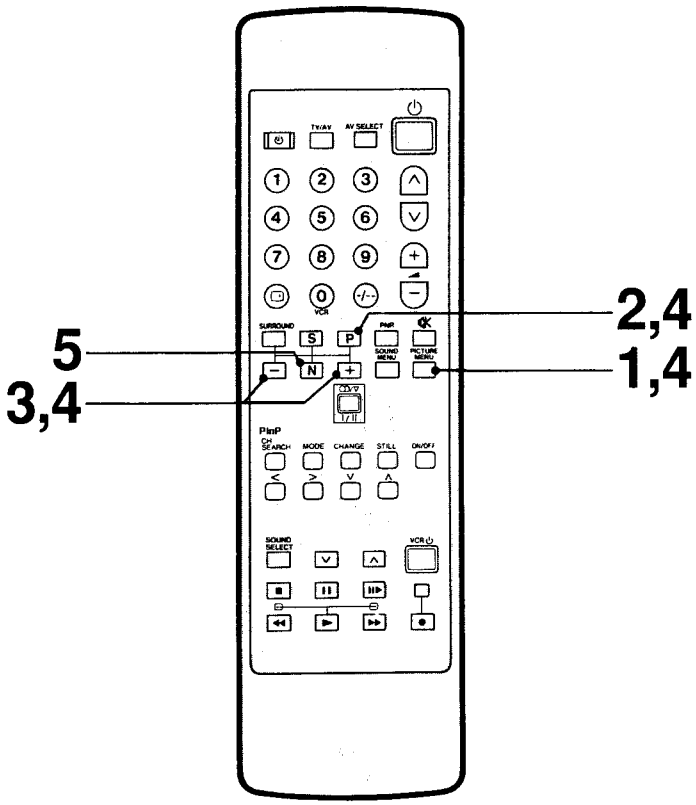
Stereo Reception

Type of broadcast	On-screen indicator	Remark
Regular broadcast (Standard Audio)		Normal use
STEREO		You can select either of the "STEREO/MONO".
SAP		You can select either of the "SAP/MONO".
STEREO + SAP		You can select either of the "STEREO/SAP/ MONO".

Note:
(1) When the power is set ON, the mode is pre-set at "STEREO".
(2) Even when the contents of the receiving signal undergo changes, selection mode is kept intact.
(3) When the receiving conditions deteriorate, listening will be easier if the STANDARD AUDIO Mode is set at "MONO" position.

Picture Menu Operation

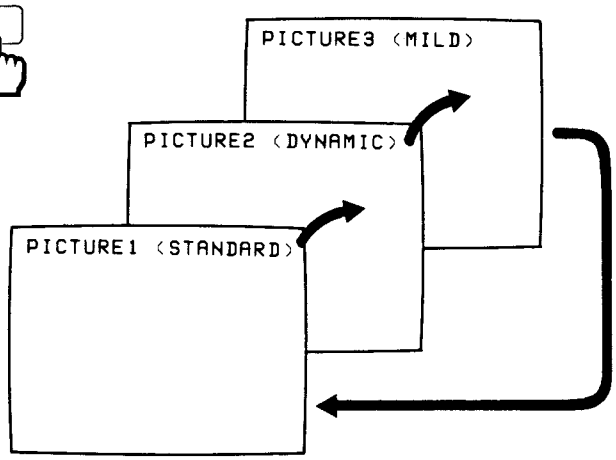
Menu Select Operation



Three menu can be selected to match the TV with the watching environments and/or the visual softwares.
"COLOR", "NTSC-TINT", "CONTRAST", "BRIGHTNESS" and "SHARPNESS" are memorized into each menu; letting you tailor the visual effect of your favorite picture.
(The level is preset at the factory.)

PICTURE MENU

By pushing this button, you can sequentially select three picture menu (STANDARD, DYNAMIC and MILD), as shown below.



PICTURE 3 (MILD)
For watching at moderately dark places, it is set at pictures where consideration is given to dark scenes.

PICTURE 2 (DYNAMIC)
For watching at bright places, it is set at modulated picture where contrast effect is strongly felt.

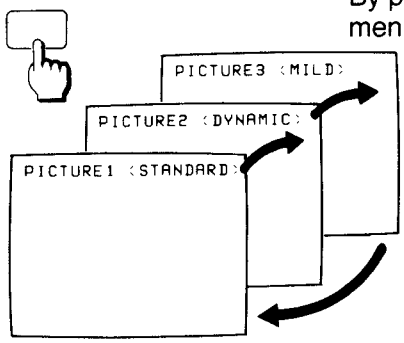
PICTURE 1 (STANDARD)
For watching at standard brightness, it is set at standard picture.

Picture Menu Operation

To Adjust the Picture Menu

1

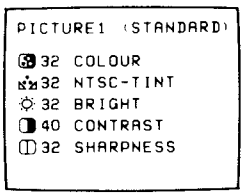
PICTURE MENU



By pushing this button, you can sequentially select three picture menu as shown below.

For each picture menu, the function levels can be adjusted as shown in following steps.

2



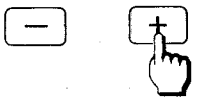
(e.g. Selecting the "PICTURE 1" menu)

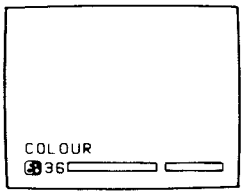
Select your desired function by pushing the "P" Button repeatedly. The on-screen display will appear as shown below.

COLOUR→NTSC-TINT→BRIGHT→CONTRAST
↑ SHARPNESS ←

Note:
"NTSC-TINT" indicator will appear on the screen only if "NTSC4.43" or "NTSC3.58" is selected.

3





(e.g. Selecting the "COLOUR" function)

By pushing the "+" Button or "–" Button, the on-screen display of the level indicator will appear as shown.

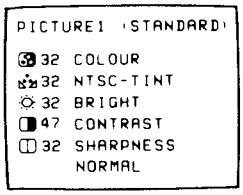
Push the "+" Button to increase the level of selected function.
Push the "–" Button to decrease the level of selected function.

4

Repeat steps 1 through 3 for the remaining picture menu.

Helpful Hint

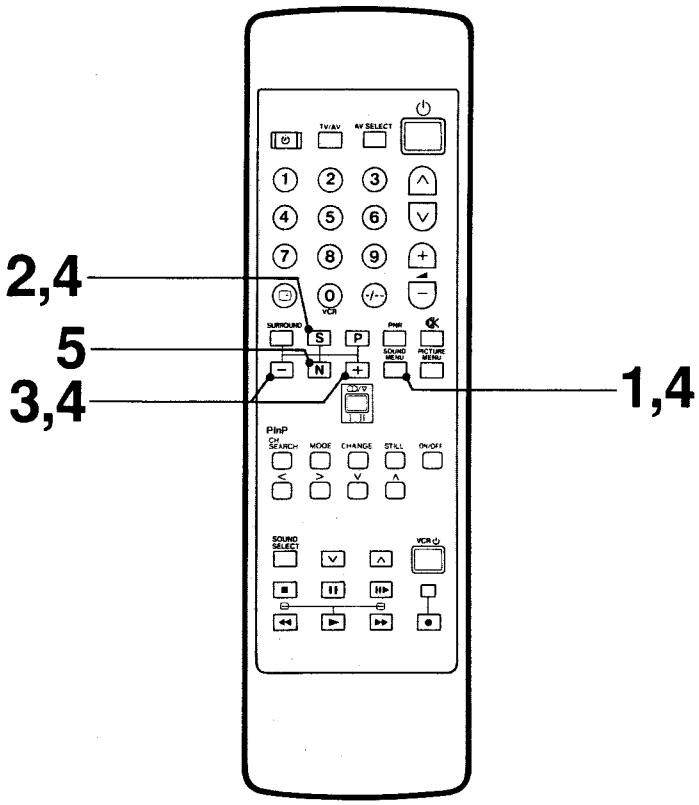
5



By pushing this button, the selected menu will be changed to the Normal mode.
The on-screen will appear as shown.

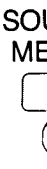
Sound Menu Operation

Menu Select Operation

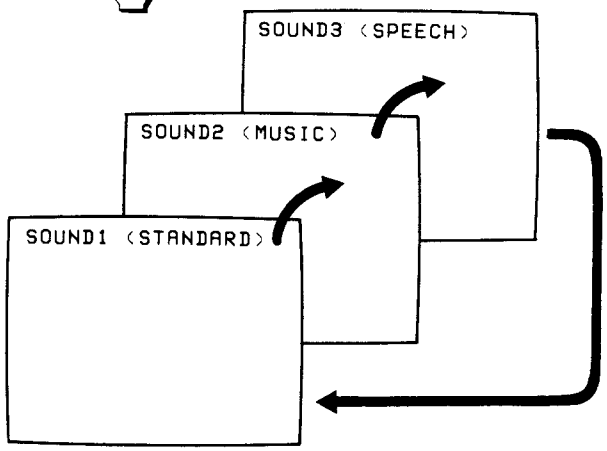


Three menu can be selected for perfect matching of the programs and/or visual softwares. "BASS", "TREBLE" and "BALANCE" are memorized into each menu; letting you select your favorite mood by inputting the desired mode.
(The level is preset at the factory.)

SOUND MENU



By pushing this button, you can sequentially select three sound menu (STANDARD, MUSIC and SPEECH), as shown below.



SOUND 3 (SPEECH)
For News program.

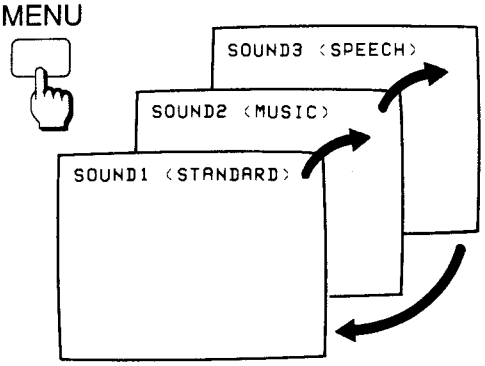
SOUND 2 (MUSIC)
For MUSIC program.

SOUND 1 (STANDARD)
For Normal use.

Sound Menu Operation

To Adjust the Sound Menu

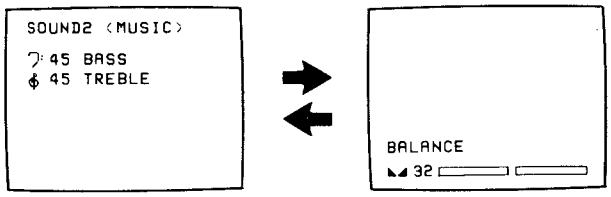
1 SOUND MENU



By pushing this button, you can sequentially select three sound menu as shown below.

For each sound menu, the function levels can be adjusted as shown in following steps.

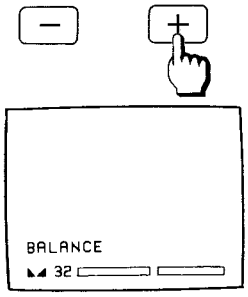
2



Select your desired function by pushing the "S" Button repeatedly.
The on-screen display will appear as shown below.

BASS→TREBLE→BALANCE

3



(e.g. Selecting the "BALANCE" function)

By pushing the "+" or "–" Button, the on-screen display of the level indicator will appear as shown.

Push the "+" Button to increase the level of selected function.
Push the "–" Button to decrease the level of selected function.

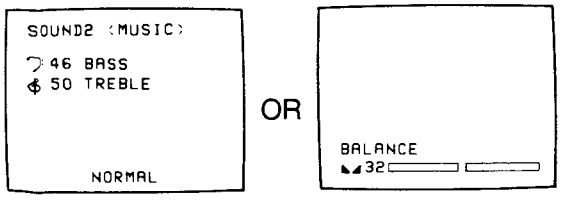
4

Repeat steps 1 through 3 for the remaining sound menu.

Helpful Hint

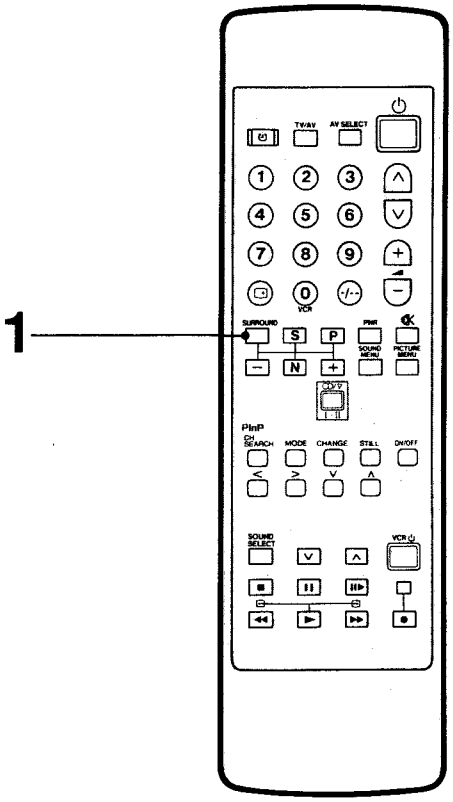
5

By pushing this button, the selected menu will be changed to the Normal mode.
The on-screen will appear as shown.



on-screen for BALANCE
level: 32 (center position)
level bar: Red

Surround Operation



1

SURROUND

AV Surround Sound

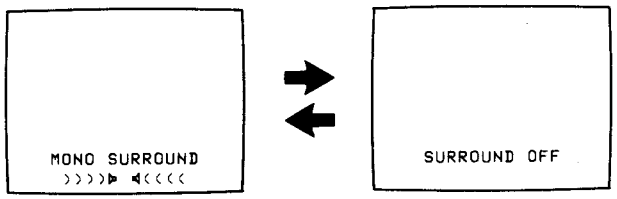
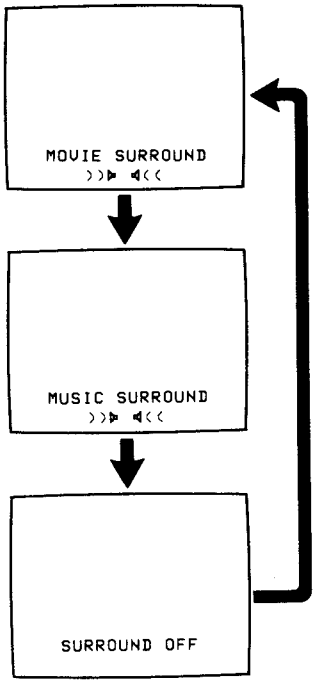
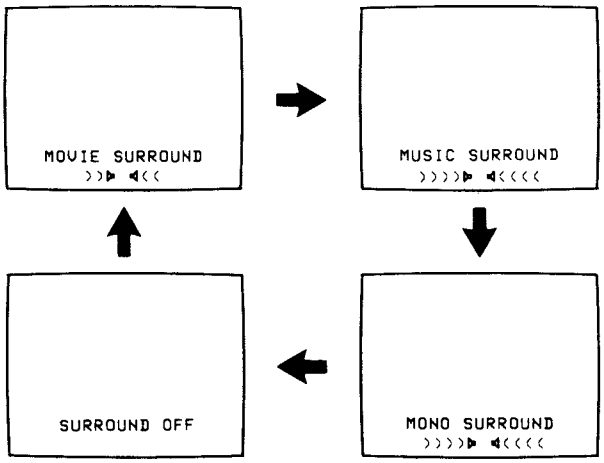
The benefits of surround sound are enormous. With additional speakers you can be completely enveloped in sound—just as if you were at a concert hall or cinema. We also provided a surround level control—so you can adjust the effect to suit your taste.

The on-screen will be changed as shown right.

Note:
When the "Movie" or "Mono" surround is selected, the Extra Bass System will set on automatically. When the Extra Bass System is activated, the dynamic low frequency ranges are boosted.

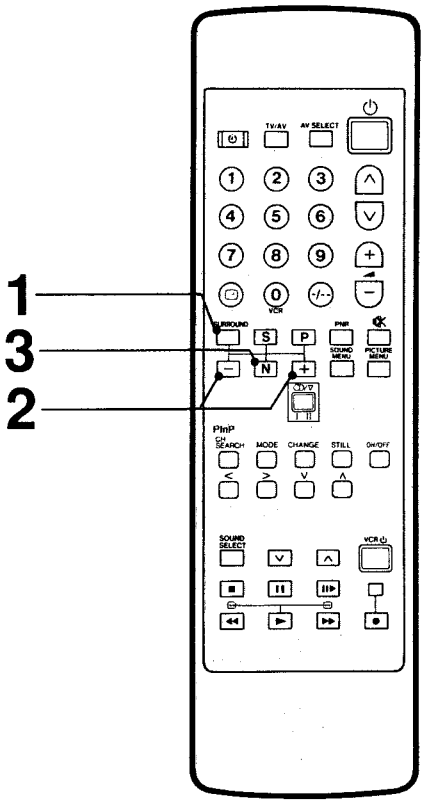
"Extra Bass System"
The Extra Bass System effect may be different according to the Program content of the music source.

Surround Operation

	Type of broadcast	On-screen	Remark
TV Mode	• Regular • SAP		You can select either of the surround "MONO/OFF".
	• STEREO		You can select either of the surround "MOVIE/ MUSIC/OFF". Note: Mono surround can not select.
AV Mode	• Select the AV Modes. (AV1, AV2 and AV3)		You can select either of the surround "MOVIE/ MUSIC/ MONO/OFF".

Surround Operation

To Adjust the Surround Level

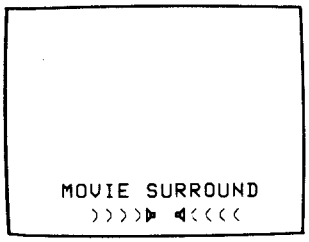


1 SURROUND

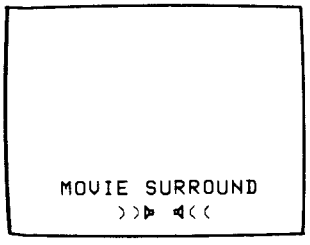
By pushing this button, you can sequentially select the Surround menu.
For surround details, refer to page 60 and 61.

2

(e.g. Selecting the "MOVIE SURROUND" menu.)
By pushing the "+" Button or "–" Button, you can select the desired surround level.



Push the " + " Button to increase the level of selected menu.



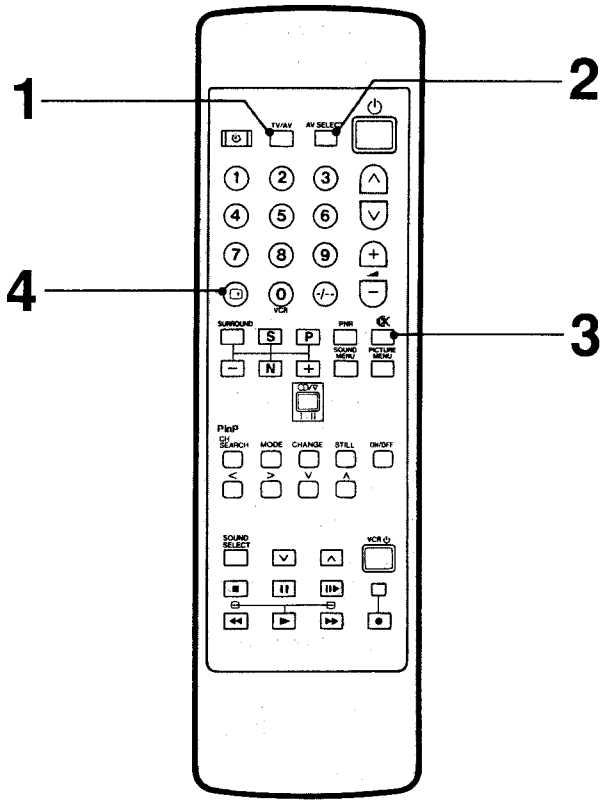
Push the " – " Button to decrease the level of selected menu.

Helpful Hint

3

By pushing this button, the selected menu will be changed to the Normal Surround level.

General Operation on the Remote Control



1

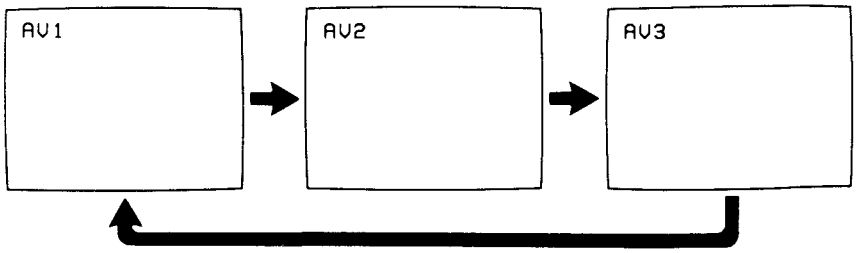
TV/AV

Push the "TV/AV Selection" Button on the Remote Control.
Then last selected AV mode will be displayed on the screen.

2

AV SELECT

By pushing this button, you can sequentially select three AV modes as shown below



Note:

(1) When AV mode (AV1, AV2 and AV3) is selected and the selected AV mode has no AV signal, the color of TV screen will appear according to the receiving Color System.
(Refer to page 42 and 43 for details of Color System)

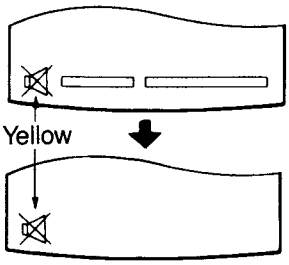
(2) When TV mode is selected, the last Program Number will appear on the screen.

General Operation on the Remote Control

3

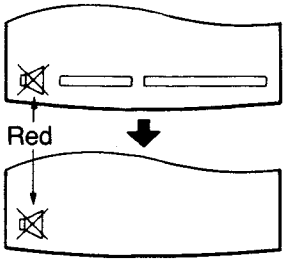
Push the "Mute" Button to mute the sound.

Push this button once to mute the sound 50%.
The on-screen display will appear as follows.
The previous sound level will appear in yellow.



The "Mute" symbol will remain unchanged.

Push this button again to mute the sound perfectly.
The previous sound level will appear in red.



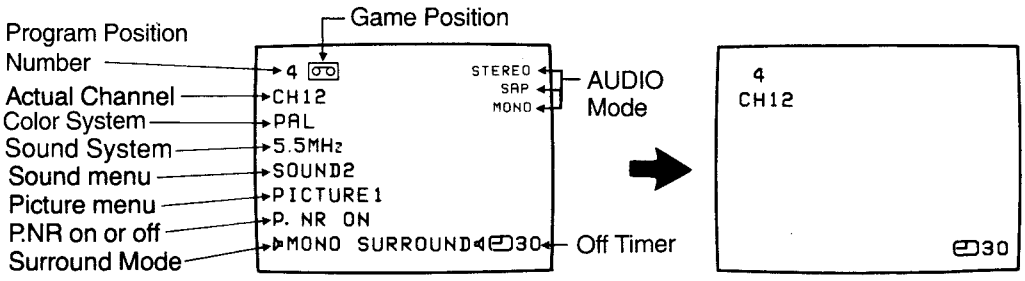
The "Mute" symbol will remain unchanged.

Push this button once again to restore the previous sound level.

Note:
In the "Mute" condition, you can use the Volume "Down" Button.
Using the Volume "Up" Button, the "Mute" will be canceled.

4

Push the "Recall" Button to activate the on-screen display as shown below.

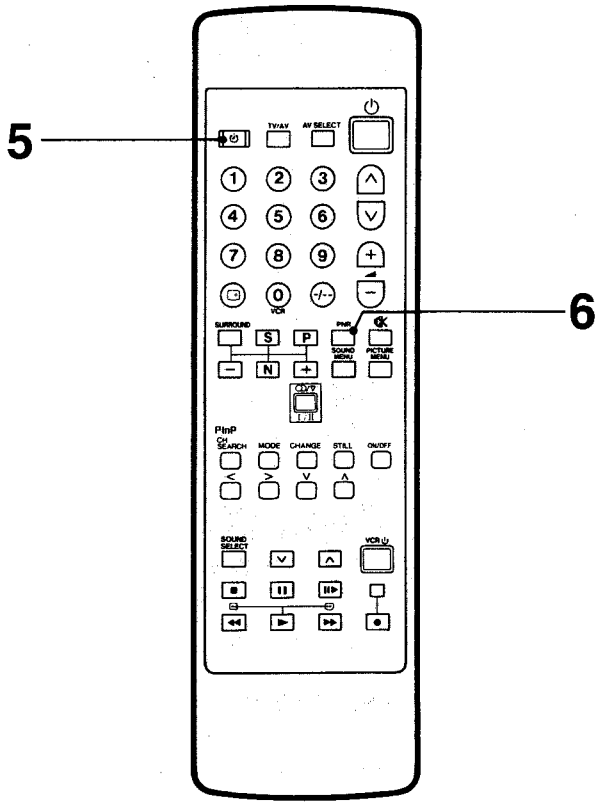


The Program Number and Actual Channel will remain.

Push again to cancel.

To be continued. ➜

General Operation on the Remote Control



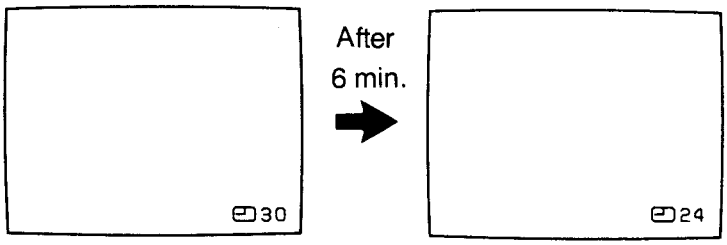
5

Off Timer Button

The TV set may be pre-set to switch off after a fixed period.
Pushing the "Off timer" Button will set the TV for 30 minutes.
To set 60 minutes, push this button again, and again for 90 minutes.
Pushing this button once more will return the Pre-set time to zero.

30→60→90→0

When a time for switch off has been set, the pre-set time will be displayed as follows. (e.g. setting for 30 min)
The on-screen display will disappear automatically.
To confirm the remaining time, push the "Recall" Button and the remaining time is displayed on-screen.
Three minutes before the time for switch off, the display of remaining time will begin to flash.

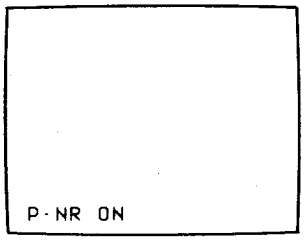


Note:
Pre-set time may be canceled in the following ways.

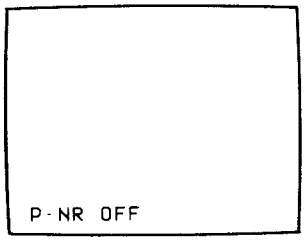
(1) Set the Pre-set Time condition to "0" using the "Off timer" Button.
(2) Turning the TV set off, using the "Power" Button on the Remote Control or the "Power" Switch on the TV set.

6

Picture Noise Reduction Button
The Picture Noise Reduction system is a system designed to effectively reduce the Picture Noise.
The on-screen display will appear as follows.



When the Picture Noise Reduction System is ON, the Picture Noise will be soft.

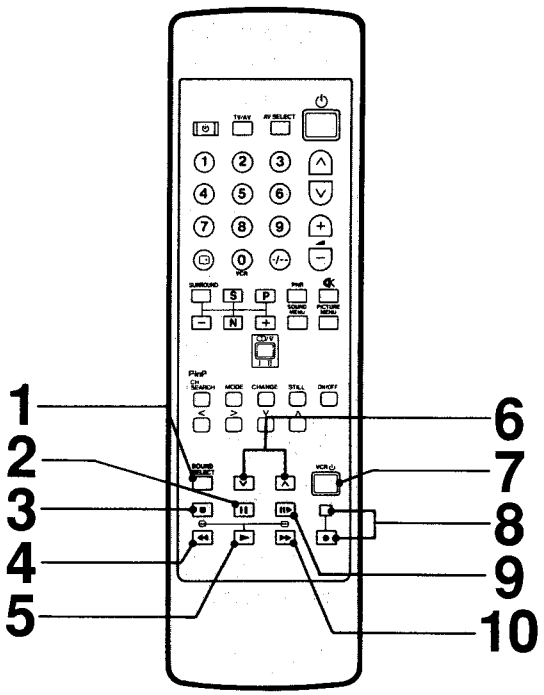


When the Picture Noise Reduction System is OFF, the Picture Noise will be sharp.
On the channel of weak broadcasting signal or no signal, the color on TV screen will appear according to the receiving Color System. And the noise will be muted automatically.

Note:
When you want to watch the weak broadcasting in spite of the disturbance, turn the Picture Noise Reduction to ON condition. Then the TV set will be able to receive the weak broadcasting.

Operation for VCR

This infrared remote control is designed specifically to be used with selected Panasonic/National VCRs. Some model VCRs have different functions, so please refer to the individual instruction booklet to ensure compatibility when using this remote control with Panasonic/National VCRs, consult your dealer for details.



1 SOUND SELECT

Sound Select Button for VCR
You can select the Sound mode (Stereo or Bilingual) by pushing this button.
For sound select operation details, refer to operating instructions of the VCR.

2

Pause/Still Button
Push to stop the tape temporarily during playback.
A still-picture will be shown.

3

Stop Button
Push this button to stop the tape.

4

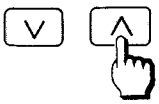
Rew (Rewind)/Review Button
Push this button to rewind the tape.
During the playback mode, holding this button down will allow you to view the picture in reverse direction rapidly. (Review)

Operation for VCR

5

Play Button
Push this button to playback the tape.

6

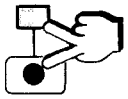


Program Number Up and Down Buttons for VCR
Push the Program Number "Up" or "Down" Button to select a program position which you want to tune to a TV station.

7

VCR Power Button
Push this button to turn the VCR on.
Push again to turn it off.

8

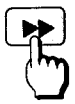


Rec (Record) Buttons
Recording is started by pushing these 2 buttons at the same time.

9

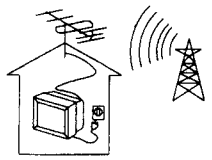
Still Advance Button
While in the still mode, push this button to advance the picture one frame at a time.

10

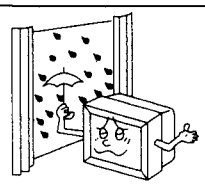


FF (Fast Forward)/Cue Button
Push this button to fast forward the tape.
During the playback mode, holding this button down will allow you to view the picture in the forward direction rapidly. (Cue)

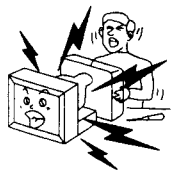
Warnings and Cautions



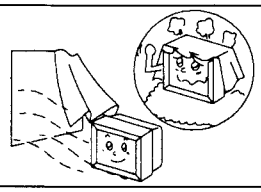
Power Source and TV System
This TV set can be operated on AC 120-240 V, 50/60 Hz.
It is designed exclusively for broadcast systems PAL B. G. I. D.
SECAM B. G. D. K. NTSC M.



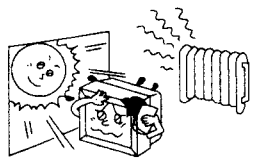
To prevent damage which may result in fire or electrical shock hazard, do not expose the TV set to rain or excessive moisture.



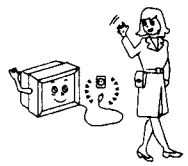
High Voltage:
Do not remove the rear cover as live parts are accessible when rear cover is removed.



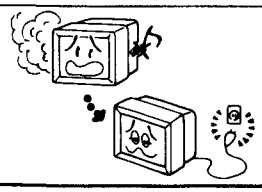
Adequate ventilation is essential to prevent failure of electrical components.



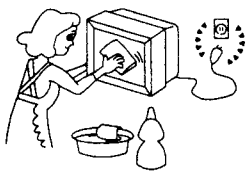
Avoid exposing the TV set to direct sunlight and other sources of heat.



Remove the AC plug from the wall outlet (Power point) when the TV set is not used for a prolonged period of time.



Do not use this set if abnormal operation occurs.
Ex : Smoke, odd sounds, or smells. Turn the power switch off and disconnect the AC plug, if you notice any unusual operation.

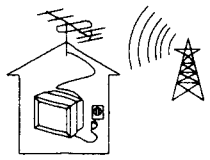
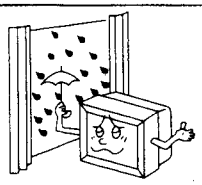
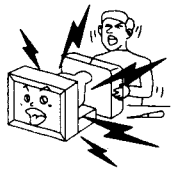
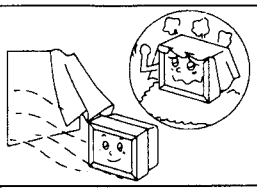
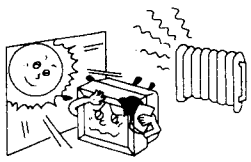
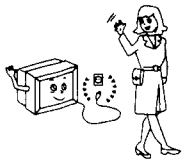
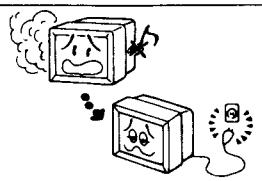


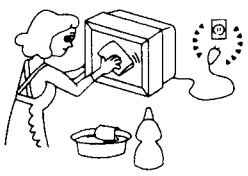
Cabinet and Picture Tube Care
The cabinet and picture tube can be kept in good condition by simply wiping with a clean, dust-less cloth moistened with mild detergent and water.
Do not use solutions containing benzol, petroleum or a chemical cloth.
For safety, remove the AC plug from the wall outlet.

Speaker grill Care
Remove dust with vacuum cleaner after attaching a brush adaptor.
Do not let the vacuum cleaner pipe come into direct contact with the speaker (without the adaptor).

CAUTION:
When the cabinet and the speaker grill are scratched (with a nail or hard object) or struck by similar materials, it may become deformed. Also, the speaker grill may be easily pierced by a sharp object.

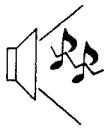
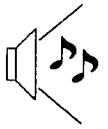
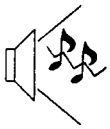
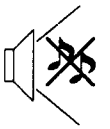
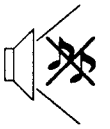
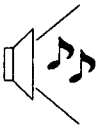
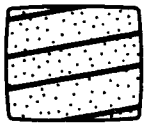
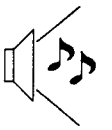
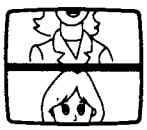
Warn- und Sicherheitshinweise

	**Stromanschluß und Fernseh-System** Das Gerät wird mit Wechselstrom 110 - 240 Volt, 50/60 Hertz betrieben. Es ist für den Empfang der Systeme PAL B, G, I, D/SECAM B, G, D, K/ NTSC-Standard eingerichtet.
	Um Schäden zu vermeiden, darf das Gerät nicht mit Wasser oder übermäßiger Feuchtigkeit in Berührung kommen.
	**Hochspannung: Lebensgefahr** Wenn man die Abdeckung an der Rückseite entfernt, liegen stromführende Teile frei. Die Rückwand deshalb auf keinen Fall entfernen.
	Eine angemessene Belüftung ist für das einwandtreie Funktionieren der elektrischen Bauteile von wesentlicher Bedeutung.
	Das Fernsehgerät vor direkter Sonne und anderen Wärmequellen schützen.
	Wenn das Fernsehgerät für längere Zeit nicht benutzt wird, ziehen Sie bitte den Netzstecker ab.
	Das Gerät nicht weiterverwenden, wenn abnormale Betriebsbedingungen festgestellt werden, z.B. Rauch, verzerrter Ton, oder Verbrennungsgeruch. Schalten Sie in diesem Fall den Hauptschalter des Gerätes aus und ziehen Sie den Netzstecker aus der Steckdose.

	**Pflege von Gehäuse und Mattscheibe** Man pflegt Gehäuse und Mattscheibe, indem man sie einfach mit einem sauberen, weichen Tuch abwischt, das mit Reinigungsmittel und Wasser angefeuchtet wird. Keine Lösungen verwenden, die Benzol oder Petroleum enthalten oder ein Tuch, das chemisch vorbehandelt ist. Aus Sicherheitsgründen zieht man den Netzstecker vor dem Reinigen heraus. **Pflege des Lautsprechergrills** Den Staub mit einem Staubsauger entfernen (Bürstenaufsatz). Den Ansaugstutzen nicht in direkten Kontakt mit dem Lautsprecher bringen (ohne Aufsatz). **VORSICHT:** Wenn das Gehäuse und der Lautsprechergrill zerkratzt (mit einem Nagel oder hartem Gegenstand) bzw. mit ähnlichen Materialien angeschlagen werden, kann es zu einer Verformung des Gehäuses kommen. Der Lautsprechergrill kann durch einen spitzen Gegenstand leicht beschädigt werden.

Troubleshooting

Before you call for service, determine the symptoms and make a few simple checks as shown below.

Symptoms		Checks
Picture	**Sound**	
Snowy Picture	 Noisy Sound	Antenna Location, direction or Connections
Multiple Image	 Normal Sound	Antenna Location, direction or Connections
Interference	 Noisy Sound	Electrical Appliances Cars/Motorcycles Fluorescent Lamps
Normal Picture	 No Sound	Speaker select switch, Volume (Check whether the mute function has been activated on the Remote Control.)
No Picture	 No Sound	Not plugged into AC outlet Not switched on Contrast and Brightness/Volume setting (Check by pushing the Power Switch or Stand-by Button on the Remote Control.)
No Color	 Normal Sound	Color Control
 Scrambled	Normal or Weak Sound	Retune Channels
Colored Patches	 Normal Sound	Magnetic interference from unshielded equipment Receiver moved while "ON" Turn the TV set off by pushing the "Power" Button on the TV set for 30 mins.
No Color  Rolling Picture H-Line	Noisy Sound	System I or II Button

Specifications

Power Source

AC 120-240 V, 50/60 Hz

Power Consumption

255W
Stand-by condition 22W

Receiving System

21 Systems		Function
1	PAL B. G	Reception of broadcasts and Playback from Video Tape Recorders
2	PAL I	
3	PAL D	
4	SECAM B. G	
5	SECAM D. K	
6	NTSC M	
7	NTSC 4.43 / 5.5MHz	Playback from Special Video Tape Recorders
8	NTSC 4.43 / 6.0MHz	
9	NTSC 4.43 / 6.5MHz	
10	NTSC 3.58 / 5.5MHz	
11	NTSC 3.58 / 6.0MHz	
12	NTSC 3.58 / 6.5MHz	
13	SECAM I	
14	SECAM L	
15	PAL 60Hz / 5.5MHz	Playback from Special Disc Players
16	PAL 60Hz / 6.0MHz	
17	PAL 60Hz / 6.5MHz	
18	SECAM 60Hz / 5.5MHz	
19	SECAM 60Hz / 6.0MHz	
20	SECAM 60Hz / 6.5MHz	
21	NTSC 50Hz / 4.5MHz	

Receiving Channels

Regular TV	**VHF BAND** 2 - 12 (PAL / SECAM B) 1 - 12 (PAL / SECAM D) 1 - 12 (NTSC M Japan) 2 - 13 (NTSC M U.S.A.) **UHF BAND** 21 - 69 (PAL G, I / SECAM G, K) 13 - 56 (PAL D) 13 - 62 (NTSC M Japan) 14 - 69 (NTSC M U.S.A.)	CATV	**U.S.A.** VHF BAND (4 + (Formerly 5A), ICC5 ICC6) MID BAND (A-5~A-1, A~I) SUPER BAND (J~W) HYPER BAND (AA~ZZ AAA, BBB) ULTRA BAND (65~94) **Europe** S1~S40

Specifications

Tuning System

Voltage synthesizer

Picture Tube

Type 33 (84 cm) measured diagonally
108° deflection

Headphones

Impedance 8Ω

Audio Output

Internal Speaker 12W (Max.) × 2
External Speaker 12W (Max.) × 2

Antenna Impedance

75Ω Unbalanced coaxial

Video/Audio Terminals

AV1, 2, 3	S-Video In	Y: 1.0 Vp-p, 75Ω C: 0.3 Vp-p, 75Ω
	Video In	1 Vp-p, 75Ω
	Audio In	Approx. 400mV
Monitor Out	Video Out	1 Vp-p, 75Ω
	Audio Out	Approx. 400mV

Accessories Supplied

Remote control × 1
R6 Battery × 2

Dimensions (W × D × H)

800mm × 543mm × 648mm

Mass

60.0 kg (Net)

Note:
Design and Specifications are subject to change without notice.
Weight and Dimensions shown are approximate.